Supreme Court, U.S.
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No. 03-719

IN THE

Supreme Court of the United States

MULTI-TECH SYSTEMS, INC.,

Petitioner,

v.

MICROSOFT CORPORATION,

Respondent.

MULTI-TECH SYSTEMS, INC.,

Petitioner,

v.

NET2PHONE, INC.,

Respondent.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

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QUESTIONS PRESENTED

In patent infringement cases, it is axiomatic that the interpretation of the patent's claims begins and remains centered on the words of the claims themselves. *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1201-02 (Fed. Cir. 2002). After reviewing the claim language, a court may review the patent's specification to provide relevant information about the claim's scope and meaning, but the focus remains on the meaning of the claim language. *Electro Medical Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994). The Federal Circuit finds disclaimers only on the basis of clear and unambiguous statements. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325 (Fed. Cir. 2003). "[F]or [the patentee] to be bound by the statement made to the PTO in connection with a later prosecution of a different patent, the statement would have to be one that the examiner relied upon in allowing the claims in the patent at issue." *Georgia-Pacific Corp. v. United States Gypsum Co., et al.*, 195 F.3d 1322, 1333 (Fed. Cir. 1999).

Despite these clear principles, the Federal Circuit concluded that the claims of Multi-Tech's three patents are limited to an exclusive telephone line connection even though the court acknowledged that the claims did not include such a limitation. In so concluding, the Federal Circuit relied on the specification and statements made during the prosecution of only one patent, even though the language was far from "clear and unambiguous." The Federal Circuit failed to determine how a person of ordinary skill in the art would understand technical terms such as "over the telephone line" or "point-to-point," reached a faulty conclusion, then applied the statements made during the prosecution of one patent to a patent that issued before those statements were made,

contrary to *Georgia-Pacific*. Public discussion of the *Multi-Tech* decision reveals the uncertainty and negative consequences that it caused. The questions presented, therefore, are:

1. Is the public notice function of the prosecution history of patents rendered meaningless when statements made during the prosecution of a later patent are used to narrow the claim scope of a patent that issued before the statements were made?

2. Is the Federal Circuit's holding—that Multi-Tech's statement in prosecution of the '627 patent regarding operation "over a telephone line" with a "point-to-point connection" between equipment at each end of the line was a disclaimer of communications over a packet-switched network—inconsistent with the Federal Circuit's precedent requiring a clear and unambiguous disclaimer of claim scope?

3. Did the Federal Circuit misapprehend the relevance and contextual use of "telephone line" in the intrinsic evidence by failing to view that evidence as a whole, in the proper context, and from the viewpoint of one skilled in the art at the time of the invention by construing the "transmitting," "receiving," and "sending" claim terms to exclude transmission over a packet-switched network?

RULE 29.6 CORPORATE DISCLOSURE STATEMENT

Petitioner Multi-Tech Systems, Inc. has no parent corporation. No publicly held company owns 10% or more of Multi-Tech.

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Petitioner Multi-Tech Systems, Inc. respectfully petitions for a writ of *certiorari* to review the judgment of the Court of Appeals for the Federal Circuit.

OPINIONS BELOW

The opinion of the Federal Circuit is reported at 357 F.3d 1340 and is reproduced in Petitioner's Appendix A at 1a-38a. The decision of the district court which the Federal Circuit affirmed is found at 2002 WL 1949755 (D. Minn. Aug. 16, 2002) and is reproduced in Appendix B at 39a-109a. The orders denying panel rehearing and denying rehearing *en banc* are unreported, and are reproduced in Appendices E and F at 117a-120a.

STATEMENT OF JURISDICTION

Judgments of the Federal Circuit were entered on February 3, 2004, and the orders denying panel rehearing and denying rehearing *en banc* issued on March 31, 2004. The jurisdiction of this Court is invoked pursuant to 28 U.S.C. § 1254(1).

STATUTE INVOLVED

No statute is at issue.

STATEMENT OF THE CASE

These appeals involved claim construction issues decided by the district court in two patent infringement actions brought against Respondents Microsoft Corporation and Net2Phone, Inc. by Petitioner Multi-Tech. Multi-Tech owns five patents, originally included in the lawsuits, which

generally relate to personal computer-based systems and methods for simultaneously transmitting digitized and packetized voice and/or data using a modem connected to a standard telephone line. All five patents share a common specification and derive from the same parent application, which issued as United States Patent No. 5,452,289 on September 19, 1995. Three of these patents were at issue in these appeals: U.S. Patent No. 5,600,649 ("the '649 patent"), which issued on February 4, 1997; U.S. Patent No. 5,764,627 ("the '627 patent"), which issued on June 9, 1998; and U.S. Patent No. 5,790,532 ("the '532 patent"), which issued on August 4, 1998.

Respondent Microsoft, in its own computer dictionary, acknowledges Multi-Tech's pioneering work in the area of digital simultaneous voice and data transmission over telephone lines:

> Digital Simultaneous Voice and Data: n. A modem technology, patented by Multi-Tech Systems, Inc., that allows a single telephone line to be used for conversation together with data transfer. This is accomplished by switching to packet-mode communications when the need for voice transfer is detected; digitized voice packets are then transferred along with data and command packets. Acronym: DSVD.

Microsoft Press Computer Dictionary, Third Edition (1997). Microsoft repeated this definition in the revised Fourth Edition of its computer dictionary. In the introduction to both editions of its computer dictionary, which Microsoft considers "comprehensive and authoritative," Microsoft admits that the dictionary mentions only key companies that

have a historical or universal importance in the computing industry:

> Although this book covers nearly every aspect of computing, it does not include entries on most companies or on most makes and models of computers, nor does it contain entries on most application software products. The few exceptions to this rule of thumb are key companies and products that have a historical or universal importance within the computing industry.

Multi-Tech's DSVD patents, which Microsoft acknowledges in its dictionary's definition of DSVD, include the '649, the '627, and the '532 patents at issue on appeal.

The '649 patent claims a method of simultaneously transmitting packetized and multiplexed voice and data through a modem and onto a telephone line. The '627 patent claims an apparatus and methods of transmitting packetized voice through a modem and onto a telephone line. The '532 patent claims a method of simultaneously transmitting packetized and multiplexed voice and video data through a modem and onto a telephone line.

The claims at issue, for Multi-Tech's '649, '627, and '532 patents, describe the transmitting, receiving, and/or sending of voice and/or data packets, as follows:

> "*transmitting* the outgoing packet stream;" and "*receiving* multiplexed incoming data . . . ;" (claim 1, '649 patent); (claim 11, '532 patent).

> "a modem connected to a telephone line for *receiving* the incoming packets from a remote site and for *sending* the outgoing packets to the remote site in full duplex communication mode;" (claim 1, '627 patent).
>
> "*sending* the outgoing packets to a remote site over a telephone line using a modem;" and "*receiving* incoming packets through the modem from the remote site;" (claim 7, '627 patent).
>
> "*transmitting* the compressed outgoing digital voice packets on a communication line using a modem;" and "*receiving* the compressed incoming digital voice data packets from the communication line." (claim 13, '627 patent).

Multi-Tech acknowledged that all of the claims require a modem connected to a telephone line. The patents' common specification explains that a "wide variety of communication interconnections" are possible with the present system: "Those skilled in the art will readily recognize the wide variety of communication interconnections possible with the present system by reading and understanding the following detailed description."

During the prosecution of the '627 patent, Multi-Tech summarized its invention as a communications system which operates over a standard telephone line:

> In their specification, Applicants disclose a communications system which operates over a standard telephone line []. Such a telephone line is commonly referred to in the art as a "plain old

> telephone service" (POTS) line and establishes a point-to-point connection between telephone equipment on each end of the line. Applicants' invention converts analog speech signals received through a local speaker phone to digital voice signals, packages the digital voice signals into packets, and transmits the packets across a POTS line to a remote site where the process is performed in reverse []. Each voice packet contains a header that identifies it as a voice packet [].

Multi-Tech did not say that its invention operates exclusively over a standard telephone line, or that the data cannot be transmitted across a packet-switched network such as the Internet.[1] Indeed, Multi-Tech could not have explained that its invention operates exclusively over a standard telephone line, because one skilled in the art would know that even an ordinary telephone call involves the "cloud" in the middle, with its many components, and is never exclusively over a telephone line.

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1. As noted by the Federal Circuit:

> A "circuit-switched network," such as the Public Switched Telephone Network, is one in which a connection is established from one user to the other such that the users have exclusive and full use of the circuit until the connection is released. . . . In contrast, a "packet-switched network," such as the Internet, is one in which data packets are relayed through various stations on a network. The packets comprising a message may travel along different paths and arrive at different times, but are reassembled in proper sequence at their destination. . . .

App. A at 8a n.2 (citations omitted).

Multi-Tech also made statements regarding a prior art patent issued to Lewen. Multi-Tech distinguished the Lewen prior art patent based on Lewen's token ring Local Area Network (LAN) and gateway, which connects to an external network such as a telephone line:

> . . . Lewen discloses a local area network (LAN) that integrates voice, data and image information over a single transmission link using an IEEE 802.5 token ring packet protocol []. Because of the nature of a token ring LAN, the packets containing voice data circulate around the network and are received by each node connected to the network until received by the node to which the voice data is addressed []. Although Lewen teaches connecting the LAN to an external telephone network through a gateway attached to the LAN as a node [], voice packets exchanged between a telephone on the external network and a node on the LAN must still circulate around the LAN as do voice packets exchanged between nodes on the LAN.
>
> In contrast, Applicants' voice packets do not circulate around a LAN but proceed directly from the communications system through the POTS line to a receiving communications system at the other end of the line. Such point-to-point links are not comparable to LANs, as evidenced by Lewen's use of a complex gateway to connect an external network to his LAN [], and thus Lewen does not disclose Applicants' invention.

Of vital importance in Multi-Tech's distinction of Lewen is the fact that there was no issue about the composition of the

external network. Multi-Tech distinguished Lewen by focusing on the circulation of voice packets around the token-ring LAN, arguing that its invention was "not comparable to LANs," which were located before the connection to an external network or "middle."

The examiner considered Multi-Tech's statements, issued a final rejection, and found that "the claims do not recite a limitation of a POTS telephone connection." App. A at 33a. To overcome that final rejection, Multi-Tech did not amend the claims to add a POTS telephone connection limitation, but instead added a "modem" limitation. *Id.* at 34a. Multi-Tech made the following statement:

> Lewen discloses a local area network (LAN) that integrates voice, data and image information over a single transmission link using an IEEE 802.5 token ring packet protocol []. Because of the nature of a token ring LAN, the packets containing voice data circulate around the network and are received by each node connected to the network until received by the node to which the voice data is addressed []. Although Lewen teaches connecting the LAN to an external telephone network through a gateway attached to the LAN as a node [], voice packets exchanged between a telephone on the external network and a node on the LAN must still circulate around the LAN until reaching either the gateway or the node.
>
> In contrast, in Applicants' invention as claimed in independent claims 38, 44, 48 and 50, voice packets are sent through a point-to-point modem connection between sites. Such a point-

> to-point link is not comparable to Lewen's LAN, nor is Lewen's complex external telephone network gateway comparable to a modem [].

The difference between Lewen and the invention, as explained by Multi-Tech, was that in Lewen, the voice packets "must still circulate around the LAN until reaching either the gateway or the node," which was how the voice packets reached the telephone line. No clear distinction was ever made based on the configuration of the external network. After Multi-Tech added the "modem" limitation, the examiner allowed the claims. *Id.*

During claim construction, the district court ruled that the '649, '627 and '532 patents require an exclusive telephone line connection from end to end because it believed Multi-Tech unambiguously disclaimed transmission of information through a packet-switched network in the '627 patent's prosecution history. App. B at 62a-63a. In so concluding, the district court applied statements made in prosecuting the '627 patent to the '649 patent, which had issued before those statements were made.

Based on the district court's claim construction, the parties submitted to the district court orders for final judgment of non-infringement against Multi-Tech. App. C at 110a-113a; App. D at 114a-116a. The clerk entered final judgment in each case, and Multi-Tech appealed to the Federal Circuit, which had jurisdiction pursuant to 28 U.S.C. § 1295(a)(1). App. A at 10a.

In a divided panel, Judge Lourie and Judge Bryson of the Federal Circuit affirmed the district court's decision and concluded that the "transmitting," "receiving," and "sending"

limitations in the '649, '627 and '532 patents are "limited to communications over a telephone line and excluding the use of a packet-switched network." *Id.* at 2a, 12a. The panel majority acknowledged that only the '627 patent's claim 7 explicitly recites an element for sending packets "over a telephone line," that the '627 patent's claim 1 refers only to "a modem connected to a telephone line," and that the '627 patent's claim 13, the '649 patent's claim 1, and the '532 patent's claim 11 are even more broad and do not "exclude data transmission over a packet-switched network." *Id.* at 13a-14a. The words "direct," "exclusive," "point-to-point," "end-to-end," and "network" appear nowhere in these claims, and the panel majority pointed to nothing in the claim language that suggested otherwise. The panel majority thus failed to appreciate that the mere reference in the claims to a "modem" or a "telephone line" was not, by itself, an exclusion of communications over a packet-switched network.

The specification never mentions packet-switched networks such as the Internet, nor does it mention circuit-switched networks. Nevertheless, the panel majority viewed the specification narrowly from the outset, by pointing to the absence of mention of a packet-switched network, and by counting the number of references to "over" and "through" a telephone line. *Id.* at 14a-16a. The panel majority did not acknowledge the broader disclosures of a "complex computer assisted communications system," which one skilled in the art would recognize has a "wide variety of communication interconnections possible." Nothing in the record shows that one skilled in the art would understand the specification's disclosures to exclude transmission over packet-switched networks.

The panel majority relied on a single statement made in prosecution of the '627 patent to "confirm" that Multi-Tech viewed all of the asserted claims as "limited to communications over a telephone line." *Id.* at 17a. Without considering the evidence of record regarding the understanding of one skilled in the art, the panel majority equated communications "over a telephone line" to a disclaimer of communications over a packet-switched network. Nothing in the prosecution history clearly and unambiguously disavowed or disclaimed transmission over a packet-switched network such as the Internet. Rather, Multi-Tech recited the communications system's structure, which includes a modem connected to a telephone line.

Circuit Judge Rader vigorously and accurately dissented for four reasons. First, nothing in the claims of the '649, '627, or '532 patents rules out the use of packet-switched networks. *Id.* at 31a. Second, the specification does not foreclose use of packet-switched networks such as the Internet. *Id.* Third, the prosecution history of the '627 patent does not clearly and unambiguously disclaim the use of packet-switched networks such as the Internet. *Id.* Fourth, the panel majority dismissed the rule in *Georgia-Pacific Corp. v. United States Gypsum Co.*, 195 F.3d 1322 (Fed. Cir. 1999), by applying statements made in the prosecution history of a later patent to limit the claims of a patent issued before those statements were made. *Id.* In short, Judge Rader could not support the panel majority's "many leaps of illogic." *Id.* at 37a.

Judge Rader correctly criticized the panel majority's conclusion that the specification's language regarding transmission "over" and "through" a telephone line requires the claims to cover communication networks where nothing

but a telephone line lies between the two end sites. *Id.* at 31a. "[T]hat leap in logic is akin to Evel Knievel jumping the Snake River Gorge on a motorcycle. Like Mr. Knievel, this court's conclusion falls short." *Id.* "If I travel *over* the river and *through* the woods to grandmother's house, this court would apparently conclude that I have traveled through nothing but rivers and woods." *Id.* at 32a. Judge Rader properly found that the "record contains no evidence to support the leap that 'over a telephone line' must mean exclusively over a telephone line." *Id.* "To my eyes, this court leaps into thin air when it says that the claims require the exclusive use of telephone line transmission." *Id.* at 33a.

Judge Rader also disagreed with the panel majority's stretch to find a clear and unambiguous disclaimer in the '627 patent's prosecution history. *Id.* As correctly noted by Judge Rader, the examiner for that history considered Multi-Tech's statements and found that "the claims do not recite a limitation of a POTS telephone connection." *Id.* When Multi-Tech amended the claims to add a modem limitation, the PTO allowed the claims. *Id.* at 34a. Judge Rader understood that Multi-Tech's statements in the '627 patent's prosecution history were "focused on the structure at each end of the communication system, not the middle medium of transmission." *Id.*

Contrary to the panel majority's finding, Judge Rader found that the prosecution history "more convincingly suggests that the inventor and the PTO saw these inventions as directly relevant to the Internet." *Id.* At the time Multi-Tech added the modem limitation, "a modem was the common and accepted way to connect to the Internet over a standard telephone line." *Id.* As correctly noted by Judge Rader, a person of ordinary skill in the art would have

understood the modem limitation as a "clear indication that the inventor intended to connect the invention to packet-switched networks, such as the Internet." *Id.* at 34a-35a. Judge Rader criticized the panel majority's emphasis on the "point-to-point" phrases in the prosecution history to exclude the Internet. *Id.* at 35a. The record indicated that the Internet allows point-to-point connections. *Id.* For example, Microsoft's Computer Dictionary of 1997, Third Edition, defines "point-to-point protocol" as "[a] data link protocol developed . . . in 1991 for dial-up telephone connections, such as between a computer and the Internet . . ." *Id.* U.S. Patent No. 5,594,490, which issued on January 4, 1997, describes a point-to-point connection using the Internet: "Modem 45 communicates with a corresponding modem 17 at distribution station 3 via a conventional point-to-point land-link such as a public switched telephone network (PSTN) *or internet*." *Id.* at 34a-35a (emphasis added).

Judge Rader further criticized the panel majority for applying the alleged disclaimer in the '627 patent's prosecution history to the '649 and '532 patents, which do not include the "modem" claim limitation. *Id.* at 36a. "[T]he alleged disclaimer by its terms applies only to the 'modem' amendment that distinguished Lewen." *Id.* Because the inventions in these patents are different, Judge Rader argued, the '649 and '532 patents were issued without a rejection in light of Lewen, whereas the '627 patent was not. *Id.*

Finally, Judge Rader found that the panel majority essentially disregarded the ruling of *Georgia-Pacific*. *Id.* at 37a. "In this case, for the first time, this court applies the prosecution history of one patent to limit the claims of a related patent that was allowed before the creation of the prosecution history at issue." *Id.* The statements in the

prosecution history of the '627 patent could not have influenced the allowance of the '649 patent because it issued before those statements were made. *Id.*

The Federal Circuit denied Multi-Tech's petitions for panel rehearing or rehearing *en banc* on March 31, 2004. App. E at 117a-118a; App. F at 119a-120a.

REASONS FOR GRANTING THE PETITION

I. Certiorari Should Be Granted Because the Panel Majority's Decision Conflicts with *Georgia-Pacific* and Creates Uncertainty in the Public's Mind.

In *Georgia-Pacific*, the Federal Circuit declared "that for [the patentee] to be bound by the statement made to the PTO in connection with a later prosecution of a different patent, the statement would have to be one that the examiner relied upon in allowing the claims in the patent at issue." 195 F.3d at 1333. Each of Multi-Tech's three patents claimed a different invention with different scope. Multi-Tech's patents expressly disclose "multiple inventions," operating "in several of the possible modes of communication," such that one skilled in the art would "readily recognize the wide variety of communication interconnections possible." The panel majority, in concluding that a single statement made in the '627 patent's prosecution could restrict claim scope forward to the later-issued '532 patent, and backward to the earlier-issued '649 patent, effectively collapsed Multi-Tech's "multiple inventions" into one. In doing so, the panel majority virtually overruled *Georgia-Pacific*, injecting uncertainty into the prosecution history's public notice function.

"The claims, specification, and file history . . . constitute the public record of the patentee's claim, a record on which the public is entitled to rely." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996). Once a patent issues, the intrinsic evidence is fixed and the public is placed on notice of the allowed claims' scope. *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202 (Fed. Cir. 2002). The panel majority looked outside the '649 patent's fixed intrinsic evidence to narrow the scope of those claims based on statements made after issuance. In doing so, the panel majority drew a thin distinction between the *Georgia-Pacific* rule of when to bind a patentee by prosecution history statements, and merely considering such statements "relevant to" claim construction. App. A at 20a. The distinction, however, was unnecessary and non-existent as the panel majority effectively equated relevancy with a binding effect. Thus, in addition to depriving the public of the certainty of fixed intrinsic evidence, the panel majority set patentees and litigants onto a path in search of statements that can have a binding effect, either forward or backward in a chain of patent applications, merely by demonstrating some relevancy to those statements.

These dramatic consequences make this an issue of exceptional importance that demands the input of this Court to ensure consistency with precedent. From the public and competitors' standpoint, the challenge of making business decisions such as product investment or design choices based on a record that could change in the future by merely "relevant" statements regarding different claims, or prior art that was not at issue when the earlier public record was fixed, would be fraught with expense and peril. Nothing in the panel majority's opinion suggests how the public will have any degree of certainty in determining if a public record is

sufficiently "fixed," or in determining relevancy, such that any on-going or future prosecution will not change that record and undermine decisions made to that point.

Equally important, the panel majority's decision changes claim construction rules, long-established since *Vitronics*, that the intrinsic record's value is in the public notice function of clear and unambiguous statements made in that record. Under the panel majority's reasoning, mere relevance as shown by statements made at any time "in an official proceeding" allows a court to determine claim scope of patents already issued on the basis of virtually every statement made at any time. Every statement in prosecution, reissue, reexamination and litigation is made in an "official proceeding," and every patentee must characterize the invention's scope in those proceedings; thus, the panel majority's reasoning has sanctioned excursions outside the intrinsic record to any "official proceeding." This change in the claim construction rules, made without admitting the implicit overruling of the precedential opinion in *Georgia-Pacific*, cannot be taken lightly.

The panel majority's decision prompted public commentary on the uncertainty and negative consequences that the decision creates in both patent prosecution and patent litigation. *See, e.g.*, "Federal Circuit Looks Back to the Future to Construe Terms," Kelly D. Talcott, N.Y. Law Journal, Vol. 231, Feb. 17, 2004; "The Retroactive Effect of Prosecution History in Claim Construction," Joseph A. Yosick, Andrews Software Law Bulletin, May 6, 2004. The decision "provides little guidance as to when courts should use statements made during the course of later prosecutions to interpret the claims of earlier, related, patents." N.Y. Law Journal, at *4. Another concern raised is "the potential for mischief, as applicants

may view later prosecutions as opportunities to shape the meaning of earlier-issued patents." *Id.*

Adherence to the *Georgia-Pacific* rule removes the consequences and uncertainties of the panel majority's ruling. The public's right to rely on the fixed public record is a clear, certain, and appropriate use of this record. The panel majority, in holding Multi-Tech bound by one statement in the '627 patent's prosecution history, equated "relevance" to a binding limitation. A public record that can be altered or changed by a later-made statement creates uncertainty, confusion, and doubt in the minds of the public and competitors and renders the right to rely on the public record meaningless.

II. Certiorari Should Be Granted Because the Panel Majority Misapprehended the Significance of the "Telephone Line," Thereby Creating Inconsistency with the Federal Circuit's Precedent Requiring a Clear and Unambiguous Disclaimer.

The panel majority's conclusion that Multi-Tech disclaimed scope with a single statement in the '627 patent's prosecution history is inconsistent with its own precedent allowing claim narrowing only when a disclaimer is clear and unambiguous. From the May 1997 statement, the panel majority elevated "over a standard telephone line," "point-to-point," and "across a POTS line" as the convincing terms over the rest of the discussion. App. A at 17a-18a. Nothing in this statement mentions or refers to the Internet or any other packet-switched network, and nowhere does the panel majority explain what is meant by the terms it found so compelling. Nor does the panel majority find language supporting the conclusion that this statement shows that the inventions transmit exclusively across a telephone line.

Rather, from the mere statement that the disclosed "communications system" operates "over a standard telephone line," the panel majority inaccurately assumes that communications over a telephone line excludes transmission over the Internet. But one skilled in the art would understand that a common way to transmit over the Internet was and still is "over a telephone line" connected to a modem. *Id.* at 34a. The statement focuses on the "communications system," which as described in the specification is only the local site. *Id.* at 17a. Even if "telephone line" and "remote site" are taken together, nothing in these two terms mentions or excludes the Internet.

Nor can Multi-Tech's description of a "point-to-point" connection be a clear and unambiguous disclaimer of communications over a packet-switched network. The panel majority neither defined "point-to-point" nor consulted the references provided by Multi-Tech confirming that "point-to-point," from the view of one of ordinary skill, includes Internet communications. *Id.* at 34a-35a. The basis for the panel majority's conclusion is unknown, or is an erroneous application of a layperson's definition. And, without explanation, the panel majority concluded that "over a telephone line" means exclusively over a telephone line and excluding a packet-switched network.

The Federal Circuit finds disclaimers only on the basis of clear and unambiguous statements. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325 (Fed. Cir. 2003) (requiring "the alleged disavowing statements to be both so clear as to show reasonable clarity and deliberateness . . . and so unmistakable as to be unambiguous evidence of disclaimer."); *Schwing GmbH v. Putzmeister Aktiengesellschaft*, 305 F.3d 1318, 1324-25 (Fed. Cir. 2002). The panel majority does not

acknowledge any interpretation of Multi-Tech's statements other than the conclusion that Multi-Tech "viewed its inventions as [] limited to communications over a telephone line." App. A at 17a. Once adopting that erroneous conclusion, the panel majority failed to consider whether any statement was a clear and unambiguous disclaimer, with no other reasonable interpretation. Indeed, this Court in *Omega* announced that it would reject "prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope" where the statements are "amenable to multiple reasonable interpretations." 334 F.3d at 1324-25.

III. Certiorari Should Be Granted Because the Panel Majority Sacrificed the Unambiguous Claim Language by Failing to Ascertain the Meaning of Those Terms to One Skilled in the Art, as Framed by the Intrinsic Evidence.

The Federal Circuit's precedent demands a single focus in claim construction, namely, ascertaining the claim language's plain and ordinary meaning to one skilled in the art. *Texas Digital*, 308 F.3d at 1201-02. By failing to find the ordinary meaning of "over a telephone line" as understood by one skilled in the art, and failing to consider the claim language in the context of the entire intrinsic evidence, the panel majority's claim construction was driven from beginning to end by faulty assumptions. The panel majority failed to follow precedent requiring claim construction to be based on a unified and cohesive analysis of the claims, specification, and prosecution history as a whole and as viewed by one skilled in the art. *Comark Comm., Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (determine claim term meaning in context of entire invention).

From the outset, the panel majority framed the issue wrong: "whether [the 'transmitting,' 'receiving,' and 'sending'] limitations are restricted to communications over a telephone line or whether they may encompass communications over a packet-switched network such as the Internet." App. A at 12a. Clearly, the panel majority viewed "over a telephone line" as an "either-or" equation, such that "over a telephone line" could not, regardless of the intrinsic evidence, include transmission over packet-switched networks. The panel majority thereafter sought only to determine whether Multi-Tech expressly disclosed transmission over a packet-switched network—even though the patents do not require or even address the type of network that is used after the data packets are transmitted onto the telephone line from the local site.

Multi-Tech could not have excluded transmitting packets over a packet-switched network when Multi-Tech disclosed and claimed transmitting packets with headers. The specification mentions packets roughly 200 times. The '627 patent claims transmitting packetized voice only. If Multi-Tech never intended its inventions to be used to send data over a packet-switched network, why would Multi-Tech go to the trouble of packetizing and placing headers on the voice data?

A. The Panel Majority Failed to Center Its Claim Construction Analysis Around the Plain and Ordinary Meaning of the Claim Language.

Claim construction must begin and remain centered on the words of the claims themselves. *Texas Digital*, 308 F.3d at 1201-02. "Proper claim construction [] demands interpretation of the entire claim in context, not a single

element in isolation." *Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999). The panel majority focused only on the presence or absence of "over a telephone line" in the asserted claims. Nowhere did the panel majority assess the meaning of "over a telephone line" in the context of the rest of the claim language. The panel majority did not attempt to understand in context of the surrounding claim language the meaning of a "modem connected to a telephone line." The panel majority concluded only that the absence of "a telephone line" in some of the claims did not "exclude data transmission over a packet-switched network," App. A at 14a, spending the remainder of its analysis on the specification and the '627 patent's prosecution history without revisiting the claim language or identifying what those terms mean to one skilled in the art.

Had the panel majority revisited the claim language, it should have determined that one skilled in the art such as Dr. Kenneth A. Zeger would have viewed "telephone line" as the twisted-pair copper wire connection from subscribers to central offices. The panel majority also should have understood—as Judge Rader did—that "over a telephone line" does not mean exclusively over a telephone line, just as "over the Internet" does not mean exclusively over the Internet. *Id.* at 31a-32a. For example, e-mail is sent "over the Internet" even though it may also travel "over a telephone line" before reaching the Internet. *Id.*

B. Judges Lourie and Bryson Failed to Properly Interpret the Multi-Tech Specification Under the Very Principles They Set Forth in *Liebel* One Week Later.

The panel majority's analysis is inconsistent with the principle that the mere absence in the specification of a disputed limitation does not limit claim scope. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898 (Fed. Cir. 2004). Issued a week after Judge Lourie and Judge Bryson's *Multi-Tech* decision, the very same judges summarize in *Liebel* the principles long guiding the Federal Circuit's use of the specification in the claim construction process, arriving at a result opposite of the result in *Multi-Tech*. The *Liebel* court distinguished between the explicit disclaimer of *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337 (Fed. Cir. 2001), and the mere absence of the structure in the specification.

In *SciMed*, the patents claimed a "catheter" with two lumens that presumably covered all configurations. *Id.* at 1339-40. However, the specification expressly described the specific coaxial lumen configuration as the structure "for all embodiments of the present invention contemplated and disclosed herein. . . ." *Id.* at 1343. Because SciMed explicitly and unambiguously excluded dual lumens, the Federal Circuit limited the claim term "lumen" to coaxial lumens. *Id.* at 1345.

In *Liebel*, the patents claimed methods and devices for use in connection with powered fluid injectors. 358 F.3d at 900. The claims and specification did not expressly require pressure jackets, and the prosecution history showed that certain claims specifically covered injectors lacking pressure jackets. *Id.* at 912. Concluding that the claims did not require

pressure jackets, the court found that the specification did not "expressly or by clear implication restrict the scope of the invention" to require pressure jackets. *Id.* at 908, 912. The court distinguished the *SciMed* case as one involving "an explicit disclaimer" of structure, "not the mere absence of any reference to that structure." *Id.* at 906.

That the same judges reached the opposite result in *Multi-Tech* and *Liebel* within a mere week demonstrates the inconsistency and uncertainty arising from the Federal Circuit generally and the *Multi-Tech* decision specifically.[2] Judge Lourie and Judge Bryson erred in equating the SciMed specification's unequivocal language with the absence of "packet-switched network" in Multi-Tech's specification. Unlike SciMed's explicit limitation, Multi-Tech did not expressly limit its communication system to transmit data exclusively over a telephone line. By aligning Multi-Tech's specification with the rare *SciMed* situation, the panel majority failed to acknowledge the breadth of Multi-Tech's disclosures. The panel majority relied on statements that do not explicitly disclaim transmission over a packet-switched network, but instead disclose the communications system at

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2. The Patent Resources Group, which teaches patent courses, recognized the Federal Circuit's chaotic claim construction law and the *Multi-Tech* decision in a description of a patent prosecution course taught in April 2004:

> Circuit Judge Rader's revealing and compelling February 3rd dissent in *Microsoft v. Multi-Tech Systems* capstones our recognition of the Federal Circuit's past five years of chaotic claim construction law. That dissent from the majority holding of noninfringement is simply ***must*** reading for every U.S. patent practitioner; the dissent is available at **www.patentresources.com**.

one end, which includes hardware components that enable communication over or through a telephone line, but not the telephone line itself. The specification's Figure 3, which shows the hardware components, includes hardware components up to the telephone line interface, but not the telephone line.

These errors were compounded by the panel majority's elevation of the preferred embodiment to the "overall inventions of all three patents," without mentioning the explicit teaching that the disclosure is "not to be taken in a limiting sense." The specification expressly describes transmission without mentioning a telephone line: "The show and tell component of the present system enables the operator to simultaneously transmit voice and data communication to a remote site." The specification also discloses data that "is placed on the telephone line via telephone line interface circuit." "Those skilled in the art will readily recognize the wide variety of communication interconnections possible with the present system. . . ." Absent in these broad disclosures is any explicit exclusion of transmitting over a packet-switched network. Without considering this broad specification language, the panel majority fell into exactly the trap that the Federal Circuit refused to enter in *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1325 (Fed. Cir. 2003) ("The danger of improperly importing a limitation is even greater when the purported limitation is based upon a term not appearing in the claim.").

C. The Panel Majority Failed to Interpret the '627 Patent's Prosecution as a Whole and as Viewed by One Skilled in the Art.

The panel majority relied on only one statement made in the '627 patent's prosecution without considering the surrounding context of Multi-Tech's other statements. The panel majority also failed to determine how one skilled in the art would understand the statements. Both approaches require this Court to review this case.

Had the panel majority considered all of Multi-Tech's statements in the '627 patent's prosecution history, it should have understood—as Judge Rader pointed out—that the focus was on the communication system at the end, not on the middle medium of transmission. App. A at 32a. Multi-Tech added a modem limitation, and a modem, at the time of the amendment, was a common way to connect to the Internet over a telephone line. *Id.* at 34a-35a. U.S. Patent No. 5,594,490, which issued in 1997, describes a point-to-point connection using the Internet. *Id.* Further, as defined in Microsoft's Computer Dictionary in 1997, a point-to-point communication protocol is "[a] data link protocol developed . . . in 1991 for dial-up telephone connections, such as between a computer and the Internet." *Id.* at 35a.[3]

Further, as discussed above, the panel majority equated "over a telephone line" and "point-to-point" with an exclusive telephone line connection between each end that excludes a

3. It is entirely appropriate for judges to consult publicly available technical resources to aid them in understanding technical claim terms regardless of whether those resources are in the record. *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202-03 (Fed. Cir. 2002).

packet-switched network. *Id.* at 17a-18a. These are wrong definitions and the wrong viewpoint. "Point-to-point" and "over a telephone line" should have been defined by one skilled in the art, not by a layperson. *Hoechst Celanese Corp. v. BP Chemicals Ltd. & Sterling Chemicals, Inc.*, 78 F.3d 1575, 1578 (Fed. Cir. 1996).

In failing to consider the '627 patent's prosecution history in the proper context and as viewed by one skilled in the art, the panel majority erroneously narrowed the claims to exclude transmission over a packet-switched network.

CONCLUSION

For the reasons set forth above, the petition should be granted.

Respectfully submitted,

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APPENDIX

APPENDIX A — OPINION OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DECIDED FEBRUARY 3, 2004

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

03-1138

MICROSOFT CORPORATION,

Plaintiff-Appellee,

v.

MULTI-TECH SYSTEMS, INC.,

Defendant-Appellant.

03-1139

MULTI-TECH SYSTEMS, INC.,

Plaintiff-Appellant,

v.

NET2PHONE, INC.,

Defendant-Appellee.

Appendix A

DECIDED: February 3, 2004

Before LOURIE, RADER, and BRYSON, *Circuit Judges*.

Opinion for the court filed by Circuit Judge LOURIE. Dissenting opinion filed by Circuit Judge RADER.

LOURIE, *Circuit Judge*.

Multi-Tech Systems, Inc. appeals from the order of the United States District Court for the District of Minnesota entering final judgment of noninfringement of U.S. Patents 5,600,649; 5,764,627; and 5,790,532 in favor of *Microsoft Corporation. Microsoft Corp. v. Multi-Tech Sys., Inc.*, No. 00-CV-1412 ADM/RLE (D. Minn. Oct. 23, 2002) ("Microsoft Final Judgment"). Multi-Tech also appeals from that same court's order entering final judgment of noninfringement of the '649 and '627 patents in favor of Net2Phone, Inc. *Multi-Tech Sys., Inc. v. Net2Phone, Inc.*, No. 00-CV-1627 ADM/RLE (D. Minn. Oct. 31, 2002) ("*Net2Phone Final Judgment*"). Since these appeals involve the same patents, we will consider both appeals together. Because we conclude that the district court did not err in its controlling claim construction, we affirm.

BACKGROUND

Multi-Tech owns five patents directed to personal computer-based systems and methods for simultaneously transmitting voice and/or computer data to a remote site over a telephone line. All five patents derive from the same parent application, which issued as U.S. Patent 5,452,289, and share

a common specification. Only three patents are at issue in this appeal: the '649 patent, the '627 patent, and the '532 patent.

The '649 patent, which is entitled "Digital Simultaneous Voice and Data Modem," is directed to methods and modules for the simultaneous transmission of voice and computer data. Claim 1 recites a method for communication of voice and data information in which outgoing computer digital data are packetized into computer data packets having headers and outgoing voice signals are received from a local user, converted into digital voice data, compressed, and packetized into voice data packets having headers. The voice and computer data packets are then multiplexed together and transmitted as an outgoing packet stream. Conversely, incoming voice and computer data packets are received, demultiplexed, and depacketized, with the incoming voice data further being decompressed and converted into remote voice signals that are conveyed to the local user. '649 patent, col. 46, l. 56 to col. 47, l. 25. The following steps recited in claim 1 are at issue in this appeal:

> placing headers on each of the compressed outgoing digital voice packets;
>
> placing headers on each of the computer digital data packets;
>
> multiplexing the compressed outgoing digital voice data packets with outgoing computer digital data packets to produce an outgoing packet stream;

transmitting the outgoing packet stream,

receiving multiplexed incoming data which contains incoming computer digital data packets multiplexed with the compressed incoming digital voice data packets; and

demultiplexing the incoming computer digital data packets and the compressed incoming digital voice data packets.

Id. at col. 47, ll. 5-25 (emphases added).

The '627 patent, which is entitled "Method and Apparatus for a Hands-Free Speaker Phone," is directed to systems and methods for transmitting packetized voice data between a local site and a remote site. Claim 1 recites:

A communication system, comprising:

a *hands-free speaker phone* operable for receiving local analog voice signals with a microphone and for playing remote analog voice signals through a speaker;

codec means connected to the hands free speaker phone for digitizing the local analog voice signals to produce local digital voice signals and for decoding remote digital voice signals to produce remote analog voice signals;

> means for placing the local digital voice signals into outgoing packets having *headers* and for removing the remote digital voice signals from incoming packets having *headers*; and
>
> a modem connected to a telephone line for *receiving the incoming packets from a remote site* and for *sending the outgoing packets to the remote site* in full duplex communication mode.

'627 patent, col. 46, ll. 37-53 (emphases added). Claims 2 and 5 depend from claim 1, adding the further limitation that the "hands-free speaker phone" include a "deskset" or "headset" microphone and speaker. *Id.* at col. 46, l. 55 to col. 47, l. 2. Claim 7 recites a method for operating a "full-duplex speaker phone" in which analog voice signals from a local site are received, digitized, placed into outgoing packets having headers, and then sent "to a remote site over a telephone line using a modem." At the same time, incoming voice data packets are "received through the modem from the remote site." Digital voice signals are then removed from the incoming packets and decoded to produce analog voice signals, which are played at the local site. *Id.* at col. 47, ll. 7-23. Similarly, claim 13 recites a method for performing "full-duplex hands-free speaker phone operation" in which outgoing voice signals are received from a local user, converted into digital voice data, compressed, packetized into voice data packets having headers, and transmitted "on a communication line using a modem." Incoming voice data packets are received "from the communication line," depacketized, decompressed, converted into analog voice signals, and conveyed to the local user. *Id.* at col. 48, ll. 23-47.

Appendix A

The '532 patent, which is entitled "Voice Over Video Communication System," is directed to a system and method for the simultaneous transmission of voice and video data. Claim 11 recites a method for "full duplex transmission of voice and video data information" in which voice signals are received from a local user, converted into digital voice data, compressed, and packetized into voice data packets. The voice data packets are then multiplexed with video data packets and transmitted as an outgoing packet stream. At the same time, incoming voice and video data packets are received and demultiplexed, with the incoming voice data packets further being depacketized, decompressed, converted into remote voice signals, and then conveyed to the local user. '532 patent, col. 48, l. 52 to col. 49, l. 13. The following steps recited in claim 11 are at issue in this appeal:

> *multiplexing* the compressed outgoing digital voice data packets with outgoing video data packets to produce an outgoing packet stream;
>
> *transmitting the outgoing packet stream*;
>
> *receiving multiplexed incoming data* which contains incoming video data packets multiplexed with the compressed incoming digital voice data packets; and
>
> *demultiplexing* the incoming video data packets and the compressed incoming digital voice data packets.

Id. at col. 49, ll. 4-13 (emphases added).

Appendix A

During prosecution of the '627 patent, the examiner rejected all of the pending claims under 35 U.S.C. § 103(a) as obvious over U.S. Patent 5,341,374 ("Lewen") in view of U.S. Patent 4,912,758 ("Arbel"). On May 9, 1997, Multi-Tech filed a response to that office action in which it distinguished Lewen, which discloses a local area network that integrates voice, data, and image information over a single transmission link, by arguing that the claimed voice packets "proceed directly from the communications system through the [telephone] line to a receiving communications system at the other end of the line." Multi-Tech also described its specification as disclosing "a communications system which operates over a standard telephone line[, which] establishes a point-to-point connection between telephone equipment on each end of the line." Notwithstanding Multi-Tech's arguments, the examiner again rejected the claims as obvious over Lewen in view of Arbel. On November 4, 1997, Multi-Tech amended the claims that issued as claims 1 and 13 of the '627 patent to require a modem, explaining that the claimed "voice packets are sent through a point-to-point modem connection between sites." Both of Multi-Tech's responses to the examiner's office actions were filed in the United States Patent and Trademark Office ("PTO") after the '649 patent had issued but before the '532 patent issued.[1]

On February 15, 2000, Multi-Tech filed suit against Net2Phone in the United States District Court for the District of Minnesota for infringement of the '289, '649, and '627 patents as well as U.S. Patent 5,471,470. On June 9, 2000, Microsoft filed suit against Multi-Tech in that same court,

1. The '649 patent issued on February 4, 1997, and the '532 patent issued on August 4, 1998.

seeking a declaratory judgment of noninfringement, invalidity, and unenforceability of seven Multi-Tech patents. Multi-Tech filed a counterclaim alleging that Microsoft infringed the '289, '470, '649, '627, and '532 patents.

In August 2002, the district court construed the disputed claim terms for the two cases in a single Markman order. *Microsoft Corp. v. Multi-Tech Sys. Inc.*, Civil Nos. 00-1412 ADM/RLE, 00-1627 ADM/RLE (D. Minn. Aug. 16, 2002) ("Markman Order"). First and foremost, the court concluded that, for all five patents at issue, the intrinsic evidence limited Multi-Tech's inventions to use of a direct point-to-point telephone line connection. *Id.*, slip op. at 20; *see also id.* at 50, 53, 55, 56. In particular, the court held that Multi-Tech had disclaimed the transmission of information through a packet-switched network,[2] such as the Internet, based on the statements that it had made during prosecution of the '627 patent. *Id.* at 21. Second, the court determined that the specification requires that the "headers" attached to the computer digital data packets identify the packet type and packet length and that the "headers" attached to the digital voice data packets identify whether the voice data contain silent sound or speech information. *Id.* at 37, 44; *see also id.*

2. A "circuit-switched network," such as the Public Switched Telephone Network, is one in which a connection is established from one user to the other such that the users have exclusive and full use of the circuit until the connection is released. Harry Newton, *Newton's Telecom Dictionary* 190-91 (5th ed. 1992). In contrast, a "packet-switched network," such as the Internet, is one in which data packets are relayed through various stations on a network. The packets comprising a message may travel along different paths and arrive at different times, but are reassembled in proper sequence at their destination. *Microsoft Press Computer Dictionary* 253 (1991).

at 50, 52, 55. Third, the court concluded that, acting as its own lexicographer, Multi-Tech had defined the term "multiplexing" to be "the combining of voice data (V-data) and conventional data (C-data) for transmission through the same channel by dynamically changing the time allocations for transmission of each type of data such that V-data has higher priority over C-data, and C-data is substituted for silence packets which are detected and discarded." *Id.* at 40-41; see also id. at 56. Fourth, the court construed the term "hands-free speaker phone" as describing "a hardware arrangement integrated into . . . 'a sophisticated telephone apparatus with its attached handset, headset and a built-in hands-free telephone operation using the integrated microphone and speaker system.'" *Id.* at 47 (citation omitted). The court also ruled that the term "full-duplex speaker phone" refers to "a telephone with a speaker that allows two people to talk at the same time" and that it works in full-duplex mode through the use of voice echo cancellation. *Id.* at 51-52; see also id. at 54. Finally, the court construed the term "digitizing" to mean "converting analog voice signals into digital signals." *Id.* at 52.

Following the district court's claim construction order, Multi-Tech stipulated that Microsoft and Net2Phone did not infringe under those claim constructions. In the Microsoft case, the court granted the parties' joint motion for entry of final judgment of noninfringement of the '289, '470, '649, '627, and '532 patents pursuant to Federal Rule of Civil Procedure 54(b); the court also stayed Microsoft's claims of invalidity and unenforceability pending this court's resolution of the issues relating to claim construction and infringement. *Microsoft Final Judgment*, slip op. at 3. In the Net2Phone

case, the district court likewise entered a final judgment of noninfringement of the '289, '470, '649, and '627 patents, but on the basis that Multi-Tech's counsel had conceded at the Markman hearing that Multi-Tech could not prove infringement literally or under the doctrine of equivalents if the court were to rule that Multi-Tech had disclaimed transmission through a packet-switched network. Net2Phone Final Judgment, slip op. at 1-2.

Multi-Tech timely appealed to this court, challenging the judgment in the Microsoft case only with respect to the '649, '627, and '532 patents and challenging the judgment in the Net2Phone case only with respect to the '649 and '627 patents. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

The only issues on appeal relate to claim construction, as lack of infringement is conceded if we affirm on claim construction. Claim construction is a question of law, *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996), that we review *de novo*, *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).

A. The "Sending," "Transmitting," and "Receiving" Limitations

On appeal, Multi-Tech first challenges the district court's construction of the limitations that refer to "sending," "transmitting," and "receiving" data packets in claim 1 of

the '649 patent; claims 1, 2, 5, 7, and 13 of the '627 patent; and claim 11 of the '532 patent. Multi-Tech argues that the court erred in restricting those limitations to the transmission of data packets over a direct point-to-point telephone line connection. According to Multi-Tech, the claims are directed only to the "ends" of the disclosed communications system and do not address what happens once the data packets are sent from the local user to the telephone line. Multi-Tech also argues that the specification describes a telephone line connected to a modem, which may be a direct end-to-end connection or may connect to a packet-switched network such as the Internet. Furthermore, Multi-Tech maintains that it did not disclaim transmission through a packet-switched network during prosecution of the '627 patent because it distinguished the Lewen reference by amending claims 1 and 13 to require a modem. Multi-Tech also argues that the term "point-to-point," which it used in remarks made to the PTO during prosecution, can refer to a connection made over a packet-switched network. In any event, Multi-Tech contends, any disclaimer arising from the statements made during prosecution of the '627 patent should not be applied to the other two patents because the '649 patent issued before those statements were made and because the inventions claimed in the '649 and '532 patents are distinct from the invention claimed in the '627 patent.

Microsoft and Net2Phone respond that the claim language, particularly that of claim 7 of the '627 patent, and the specification require a direct point-to-point connection over a telephone line. They also argue that the prosecution history of the '627 patent mandates such an interpretation because Multi-Tech defined its invention as establishing a

direct connection between the local and remote sites over a telephone line and argued that its claims require a "point-to-point" connection "from the communications system through the [telephone] line to a receiving communications system at the other end of the line." Finally, Microsoft and Net2Phone maintain that the prosecution history of the '627 patent is relevant to an understanding of the other two patents, which stem from the same parent application and share a common specification.

Thus, the parties' dispute over the "sending," "transmitting," and "receiving" limitations reduces to a single issue: whether those limitations are restricted to communications over a telephone line or whether they may encompass communications over a packet-switched network such as the Internet. For the reasons enumerated below, we agree with Microsoft and Net2Phone that the district court properly construed the "sending," "transmitting," and "receiving" limitations in the '649, '627, and '532 patents as being limited to communications over a telephone line and excluding the use of a packet-switched network.

Claim interpretation begins with the claims themselves, the written description, and, if in evidence, the prosecution history. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). "Claim language generally carries the ordinary meaning of the words in their normal usage in the field of invention." *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1367 (Fed. Cir. 2003). Although it is improper to read a limitation from the specification into the claims, *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998), "[c]laims must be read in view

of the specification, of which they are a part," *Markman*, 52 F.3d at 979; see also United States v. Adams, 383 U.S. 39, 49 (1966) ("[C]laims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention."); *Slimfold Mfg. Co. v. Kinkead Indus., Inc.*, 810 F.2d 1113, 1116 (Fed. Cir. 1987) ("Claims are not interpreted in a vacuum, but are part of and are read in light of the specification."). Indeed, "[o]ne purpose for examining the specification is to determine if the patentee has limited the scope of the claims." *Watts v. XL Sys., Inc.*, 232 F.3d 877, 882 (Fed. Cir. 2000). When the specification "makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001). A patentee may also limit the scope of the claims by disclaiming a particular interpretation during prosecution. *Biodex Corp. v. Loredan Biomed., Inc.*, 946 F.2d 850, 862 (Fed. Cir. 1991).

We thus begin our analysis with the claim language itself. Claim 1 of the '627 patent recites "a modem connected to a telephone line for receiving incoming packets from a remote site and for sending the outgoing packets to the remote site in full duplex communication mode." '627 patent, col. 46, ll. 50-53. Claim 7 of the '627 patent requires "sending the outgoing packets to a remote site over a telephone line using a modem" and "receiving incoming packets through the modem from the remote site." *Id.* at col. 47, ll. 15-18. Similarly, claim 13 of the '627 patent recites "transmitting

the compressed outgoing digital voice packets on a communication line using a modem" and "receiving the compressed incoming digital voice data packets from the communication line." *Id.* at col. 48, ll. 44-47. Claim 1 of the '649 patent and claim 11 of the '532 patent recite "transmitting the outgoing packet stream" and "receiving multiplexed incoming data." '649 patent, col. 47, ll. 18-19; '532 patent, col. 49, ll. 7-8.

From the plain language of those claims, only claim 7 of the '627 patent explicitly states that the transmission of data packets between the local site and the remote site must occur "over a telephone line." Claim 1 of the '627 patent similarly refers to a telephone line, but is more ambiguous in that it refers to the modem connection rather than the data transmission. And the language of claim 13 of the '627 patent, claim 1 of the '649 patent, and claim 11 of the '532 patent is even more broad. It makes no reference to a telephone line and standing alone does not exclude data transmission over a packet-switched network.[3]

Nonetheless, the claims must be interpreted in light of the specification, which is identical for all three patents and which repeatedly and consistently describes the local and remote systems of the claimed inventions as communicating

3. We reject Microsoft's contention that the "full duplex" language of claim 1 of the '627 patent and claim 11 of the '532 patent requires a direct telephone line connection. "Full duplex" operation means that the data packets can be transmitted simultaneously in both directions; it does not require that the data packets travel along the exact same path in both directions. *See Microsoft Press Computer Dictionary* 119 (1991).

directly over a telephone line. The "Summary of the Invention" portion of the specification states that the claimed personal communications system includes "hardware to enable voice, fax and data communications with a remote site connected through a standard telephone line," '289 patent, col. 1, ll. 48-50,[4] as well as circuitry to "transfer [data] over the telephone lines to a remote site," id. at col. 2, ll. 49-50. The specification further discloses that the hardware components of the local system "communicate over a standard telephone line . . . to one of a variety of remote sites." *Id.* at col. 5, ll. 63-64. It then describes various preferred embodiments of the invention, in all of which the hardware components of the local system "communicat[e] over a standard telephone line" to the disclosed hardware components, a facsimile machine, a modem, or a standard telephone at the remote site. *Id.* at col. 5, l. 64 to col. 6, l. 7; *id.* at fig. 1. The specification also discloses that the system "allows the user to connect to remote locations equipped with a similar system or with modems, facsimile machines or standard telephones over a single analog telephone line." *Id.* at col. 6, ll. 36-39.

Those statements, some of which are found in the "Summary of the Invention" portion of the specification, are not limited to describing a preferred embodiment, but more broadly describe the overall inventions of all three patents. Indeed, they characterize the entire "personal communications system" as enabling communications between a local site and a remote site over a telephone line.

4. For ease of reference, we cite only the specification of the parent '289 patent, although the same statements are also found in the identical specifications of the '649, '627, and '532 patents.

Moreover, those descriptions of the claimed inventions are by no means limited to just the "ends" of the communications system as Multi-Tech argues. On the contrary, they explain that data packets from a local site are transferred "over" or "through" a telephone line "to a remote site," making clear that the communications link between the local and remote systems is a telephone line. In fact, the specification refers to data transmission "over" or "through" a telephone line roughly two dozen times. Nowhere does it even suggest the use of a packet-switched network. In light of those clear statements in the specification that the invention ("the present system") is directed to communications "over a standard telephone line," we cannot read the claims of the '627 patent, the '649 patent, or the '532 patent to encompass data transmission over a packet-switched network such as the Internet. Instead, the specification shared by all three patents leads to the "inescapable conclusion" that the communications between the local and remote sites of the claimed inventions must occur directly over a telephone line. *See SciMed Life Sys.*, 242 F.3d at 1342 (concluding that the common specification of three patents led to the "inescapable conclusion" that their claims required coaxial lumens, even though the claim language itself was not so limited); *see also Alloc, Inc. v. Int'l Trade Comm'n*, 343 F.3d 1361, 1370 (Fed. Cir. 2003) (concluding that, read as whole, the common specification of three patents led to the "inescapable conclusion" that the claimed inventions must include "play" in every embodiment, even though the claim language was not so limited). Accordingly, we construe the "sending," "transmitting," and "receiving" limitations of the '627, '649, and '532 patents to require that the claimed data packets travel directly from a local site to a remote site (and vice

versa) over a telephone line and not a packet-switched network.

Furthermore, an examination of the '627 patent's prosecution history confirms that Multi-Tech viewed its inventions as being limited to communications over a telephone line. In response to the examiner's first office action, Multi-Tech took the opportunity to provide a "summary of the invention" before addressing the § 103 rejection. It stated:

> In their specification, Applicants disclose a communications system which operates over a standard telephone line. Such a telephone line is commonly referred to in the art as a "plain old telephone service" (POTS) line and establishes a point-to-point connection between telephone equipment on each end of the line. Applicants' invention . . . transmits the packets across a POTS line to a remote site . . . .

(citations omitted). That statement, which expressly related to the specification shared by all three patents and the communications system disclosed in all three patents, makes clear that Multi-Tech viewed the local and remote sites of its inventions as communicating directly over a telephone line. Again, it does not describe just the connection at the "ends" of the claimed communications system, but explicitly states that the data packets travel "across a [telephone] line to a remote site" and further describes that path as being a "point-to-point" connection "between" each end. That statement unambiguously reflects Multi-Tech's own understanding of

its inventions in the '627, '649, and '532 patents as being limited to the transmission of data packets over a telephone line. We cannot construe the claims to cover subject matter broader than that which the patentee itself regarded as comprising its inventions and represented to the PTO.[5]

Moreover, although Multi-Tech made the above-quoted statement during prosecution of the '627 patent, it is also applicable to both the '649 and the '532 patents. In the past, we have held that the prosecution history of one patent is relevant to an understanding of the scope of a common term in a second patent stemming from the same parent application. *E.g.*, *Jonsson v. Stanley Works*, 903 F.2d 812, 818 (Fed. Cir. 1990); *see also Laitram Corp. v. Morehouse*

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5. During prosecution of the '627 patent, Multi-Tech went on to distinguish Lewen, which discloses the use of a token-ring local area network ("LAN") to transmit voice, data, and image information, by explaining that "[i]n contrast, Applicants' voice packets do not circulate around a LAN but proceed *directly* from the communications system through the [telephone] line to a receiving communications system at the other end of the line." (emphasis added). Multi-Tech further distinguished the Arbel reference on the basis that it does not disclose the transmission of packetized voice data "across" or "over" a POTS line. Those statements add further credence to our claim interpretation. However, because they refer more specifically to the references cited against the claims of the '627 patent only, we limit their relevance to our interpretation of the '627 patent.

Moreover, the prosecution history statements that we rely on were made by Multi-Tech in May 1997 and relate to the communications system disclosed in the common specification. We do not, as the dissent suggests, rely on the November 1997 "modem" amendment, which applies only to the '627 patent.

Indus., Inc., 143 F.3d 1456, 1460 n.2 (Fed. Cir. 1998) (applying the prosecution histories of two sibling patents, which shared a common written description, to one another). We likewise believe that Multi-Tech's statement made during prosecution of the '627 patent is relevant to an understanding of the common disclosure in the sibling '649 and '532 patents. Multi-Tech's statement was expressly directed to the "communications system" disclosed "[i]n the[] specification." That communications system encompasses the inventions of all three patents, see '289 patent, col. 1, ll. 35-37 (stating that the "communications system . . . contains multiple inventions"), and as noted above, the specification is identical for all three patents. Multi-Tech's statement to the PTO was thus not limited to the invention disclosed in the '627 patent, but was a representation of its own understanding of the inventions disclosed in all three patents. We therefore conclude that that statement from the '627 patent's prosecution history is pertinent to an interpretation of the later issued '532 patent. *See Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 980 (Fed. Cir. 1999) (applying the prosecution history of one patent to a related, subsequently issued patent).

Furthermore, even though the '649 patent had already issued, we think that it is not unsound to apply the same interpretation to that patent. We take the patentee at its word and will not construe the scope of the '649 patent's claims more broadly than the patentee itself clearly envisioned. We also reject Multi-Tech's argument, based on *Georgia-Pacific Corp. v. United States Gypsum Co.*, 195 F.3d 1322, 1333 (Fed. Cir. 1999), that the statements made during prosecution of the '627 patent should not be applied to the

'649 patent because the examiner could not have relied on those statements in allowing the claims of the '649 patent. We have stated on numerous occasions that a patentee's statements during prosecution, whether relied on by the examiner or not, are relevant to claim interpretation. *Laitram Corp.*, 143 F.3d at 1462 ("The fact that an examiner placed no reliance on an applicant's statement distinguishing prior art does not mean that the statement is inconsequential for purposes of claim construction."); *E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1438 (Fed. Cir. 1988) ("Regardless of the examiner's motives, arguments made during prosecution shed light on what the applicant meant by its various terms."). Georgia-Pacific is not to the contrary. In that case, we rejected the argument that the patentee was "bound by" statements made by the applicant in connection with a later application after the patent in suit had already issued. *Ga.-Pac. Corp.*, 195 F.3d at 1333. The accused infringer argued that the patentee was foreclosed by the later statement from arguing in favor of a broader construction of the earlier patent, even though intrinsic evidence supported that broader construction. We rejected the argument that the patentee was bound, or estopped, by a statement made in connection with a later application on which the examiner of the first application could not have relied. We did not suggest, however, that such a statement of the patentee as to the scope of the disclosed invention would be irrelevant. Any statement of the patentee in the prosecution of a related application as to the scope of the invention would be relevant to claim construction, and the relevance of the statement made in this instance is enhanced by the fact that it was made in an official proceeding in which the patentee had every incentive to exercise care in characterizing the

scope of its invention. Accordingly, we conclude that Multi-Tech's statements made during the prosecution of the '627 patent with regard to the scope of its inventions as disclosed in the common specification are relevant not only to the '627 and '532 patents, but also to the earlier issued '649 patent.

In sum, based on our analysis of the claim language, the specification, and the prosecution history, we conclude that the district court properly interpreted the "sending," "transmitting," and "receiving" limitations of the '627, '649, and '532 patents as requiring the direct transmission of data packets between the local and remote sites over a telephone line and excluding the use of a packet-switched network such as the Internet. This conclusion in and of itself leads to our affirmance of the district court's decisions. However, inasmuch as other issues of claim construction were decided by the district court and argued before us, we consider it to be in the interest of judicial efficiency, as well as in the interest of any future litigation concerning these patents, to review the other contested claim limitations.[6]

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6. Net2Phone has not responded to Multi-Tech's arguments regarding the remaining claim terms because the district court's final judgment of noninfringement in the Net2Phone case was based solely on the court's interpretation of the "sending," "transmitting," and "receiving" limitations. However, because the final judgment of noninfringement in the Microsoft case was based on the court's claim construction in its entirety and not just its interpretation of particular limitations, we will review all of the disputed claim terms that Multi-Tech has appealed.

Appendix A

B. "Multiplexing"

Multi-Tech next challenges the district court's construction of the claim term "multiplexing" in claim 1 of the '649 patent and claim 11 of the '532 patent. Multi-Tech argues that the court improperly imported limitations from the specification into the claims by requiring that voice data have priority over computer data and that computer data be substituted for detected and discarded silence packets.

Microsoft responds by pointing out that the parties agreed that Multi-Tech acted as its own lexicographer in defining the term "multiplexing." Therefore, Microsoft argues, the specification's definition of the term "multiplexing" to include the prioritization of voice packets, the detection and discarding of silence packets, and the transmission of computer data during periods of silence is the proper one.

We again begin our analysis with the claim language. Claim 1 of the '649 patent simply requires "multiplexing" outgoing voice and computer data packets and "demultiplexing" incoming voice and computer data packets. '649 patent, col. 47, ll. 14-25. Claim 11 of the '532 patent similarly requires "multiplexing" and "demultiplexing" voice and video data packets. '532 patent, col. 49, ll. 4-13. At the very least then, the plain language of the claims defines the term "multiplexing" as the combining of voice and computer data packets. The parties also agree that Multi-Tech acted as its own lexicographer in defining the term "multiplexing" to mean "dynamic multiplexing," or the combining of voice and computer data packets for transmission through the same channel by dynamically changing the time allocations for

transmission of each type of data. That interpretation is supported by the specification. *See, e.g.*, '289 patent, col. 3, l. 2; *id.* at col. 7, ll. 39-42.

The parties disagree, however, as to the propriety of the district court's inclusion of two additional limitations in its interpretation of the term "multiplexing." First, we agree with Microsoft that the court properly interpreted the term "multiplexing" to require the prioritization of voice data over computer data. In its discussion of multiplexing, the specification provides that voice data have higher priority than computer data "to ensure the integrity of the real-time voice transmission." *Id.* at col. 35, ll. 57-58. Because maintaining the integrity of the voice data is central to the functioning of the claimed inventions, we read Multi-Tech as having defined the term "multiplexing" to require the prioritization of voice data over computer data.

However, we agree with Multi-Tech that the court improperly construed the term "multiplexing" to require the detection and discarding of silence packets and the transmission of computer data packets during periods of silence. The specification's references to those limitations are nothing more than disclosures of a preferred embodiment. Although those features may be desirable, nowhere does the specification indicate that they are necessary for the multiplexing function. Moreover, the method of detecting and discarding silence packets and transmitting only computer data packets during periods of silence is separately claimed in the dependent claims. '649 patent, col. 47, ll. 26-35; '532 patent, col. 49, ll. 14-23; *see Comark Communications*, 156 F.3d at 1187 (recognizing that the

doctrine of claim differentiation, although not a hard and fast rule of claim construction, creates a presumption that each claim in a patent has a different scope). We therefore conclude that the term "multiplexing" does not include the limitations of detecting and discarding silence packets and transmitting computer data packets during periods of silence.

C. "Headers"

Multi-Tech also argues that the district court erred in its construction of the term "headers" in claim 1 of the '649 patent and claims 1, 2, 5, 7, and 13 of the '627 patent. Multi-Tech maintains that the term "headers" should be given its ordinary meaning of "information structures that precede units of data, such as packets." Multi-Tech thus asserts that the headers attached to computer data packets need not identify packet type or packet length and that the headers attached to voice data packets need not identify whether the packets contain speech or silence. According to Multi-Tech, the district court improperly imported those additional limitations from the specification's preferred embodiments into the claims, despite the broader claim language.

Microsoft responds that the term "headers" has several ordinary meanings and that Multi-Tech's proposed definition is inconsistent with the specification's preferred embodiment and various dictionary definitions. Microsoft also argues that the specification requires both that the computer data packet headers identify packet type and packet length and that voice data packet headers indicate whether the packets contain speech or silence.

Appendix A

We agree with Multi-Tech that the district court's interpretation of the term "headers" was overly narrow. Claim 1 of the '649 patent refers to "placing headers" on the voice data packets as well as "placing headers" on the computer data packets. '649 patent, col. 47, ll. 5-13. Claims 1 and 7 of the '627 patent simply refer to voice data packets "having headers," '627 patent, col. 46, ll. 47-49; *id.* at col. 47, l. 14, while claim 13 recites "placing headers" on outgoing voice data packets, id. at col. 48, l. 39. We therefore start from the presumption that the term "headers" carries its ordinary meaning of "information structure[s] that precede[] and identif[y] the information that follows." *Microsoft Computer Dictionary* 215 (4th ed. 1999).

Considering both the claim language and the specification, we next conclude that the claimed "headers," at least in the '649 patent, must identify whether the packets are voice or computer data packets.[7] To begin with, the claim language of the '649 patent separately refers to "placing headers" on voice data packets and "placing headers" on computer data packets. Moreover, the specification states that "[t]he voice data packet information . . . uses a different header format [than does the computer data packet information] so the receiving site recognizes the difference between a data packet and a voice packet." '289 patent, col. 13, ll. 17-20. Such differentiation is necessary to enable the prioritization of voice data packets over computer data packets that, as discussed above, must occur when the two types of packets are multiplexed together. We therefore read

7. In the '627 patent, the claimed "headers" need not distinguish between voice data packets and computer data packets because that patent involves only voice data packets.

the claim language, in light of the specification, as requiring that the "headers" of the '649 patent identify whether the following packets contain voice or computer data.

We further conclude, however, that the claimed "headers" need not identify the computer data packets' type and length or whether the voice data packets contain speech or silence. To be sure, the specification does disclose a preferred embodiment in which the computer data packets begin with an "ID byte" specifying the type and length of the packet, *id.* at col. 20, ll. 36-43 & tbls. 3-5, and the voice data packets have a "sign byte" specifying whether the packet contains silent sound or speech information, id. at col. 34, l. 64 to col. 35, l. 2 & tbl. 15. The district court determined that such additional limitations must be read into the claims because they are necessary "[f]or the preferred embodiment to function as specified." Markman Order, slip op. at 37.[8] However, those statements are limited to descriptions of the "packet protocol" used in the preferred embodiments, see '289 patent, col. 18, l. 13; *id.* at col. 33, l. 61, and are merely illustrative of how the headers can be configured. We therefore conclude that the claimed "headers" need not identify the computer data packets' type and length or whether the voice data packets contain speech or silence.

D. The "Speaker Phone" Limitations

Multi-Tech next argues that the district court erred in its interpretation of the terms "hands-free speaker phone,"

8. Our broader interpretation of the term "headers" does not exclude the use of the headers disclosed in the preferred embodiment; it simply does not require their use.

"full-duplex speaker phone," and "full-duplex hands-free speaker phone" in claims 1, 2, 5, 7, and 13 of the '627 patent. Multi-Tech maintains that the court erred in limiting the "speaker phone" limitations to traditional speaker phones because the claim language discloses a speaker phone that is simply a microphone and a speaker, regardless of its physical housing. Multi-Tech further argues that the court improperly construed the "full-duplex speaker phone" limitations to require echo cancellation, an optional feature disclosed in the specification.

Microsoft responds that, according to its ordinary meaning, the term "speaker phone" must include structure beyond just a microphone and a speaker in order to be a telephone. Microsoft also argues that the term "full-duplex speaker phone" must include echo cancellation because the specification states that the use of a microphone and a speaker "necessitates the use of an acoustical echo cancellation algorithm to prevent feedback from destroying the voice signals."

We agree with Multi-Tech that the district court construed the "speaker phone" limitations too narrowly. Neither the claims nor the specification describes any physical housing that must comprise the "hands-free speaker phone." Claim 1 of the '627 patent simply recites a "hands-free speaker phone" with a microphone and a speaker. '627 patent, col. 46, ll. 37-39. Dependent claims 2 and 5 further require that the "hands-free speaker phone" include, respectively, a "deskset microphone" and a "deskset speaker," *id.* at col. 46, ll. 55-57, or a "headset microphone" and a "headset speaker," *id.* at col. 46, l. 66 to col. 47, l. 1. Claim

7 recites a "full-duplex speaker phone," *id.* at col. 47, l. 7, and claim 13 recites a "full-duplex hands-free speaker phone," *id.* at col. 48, ll. 22-23. Moreover, the specification repeatedly refers to three alternative telephone interfaces: a handset, a headset, and a hands-free microphone and speaker. *E.g.*, '289 patent, col. 8, ll. 20-21 & fig. 3. It consistently describes the hands-free interface as simply a microphone and a speaker. To require more structure would impermissibly exclude a preferred embodiment from the claim limitation. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (stating that it is "rarely, if ever, correct" to interpret a claim to exclude a preferred embodiment). We therefore conclude that the term "speaker phone" requires no physical structure beyond a microphone and a speaker.

We agree with Microsoft, however, that the district court properly construed the "speaker phone" limitations to require the use of echo cancellation. Although the language of the independent claims does not expressly refer to echo cancellation, the specification provides that the "use of the speaker and microphone necessitates the use of an acoustical echo cancellation algorithm to prevent feedback from destroying the voice signals" and that "a line echo cancellation algorithm is needed no matter which telephone interface . . . is used." '289 patent, col. 31, l. 67 to col. 32, l. 4 (emphases added). Those statements clearly mandate the use of acoustical and line echo cancellation. We therefore conclude that the "speaker phone" limitations require the use of echo cancellation.

E. "Digitizing"

Multi-Tech finally argues that the district court improperly construed the term "digitizing," found in claim 7 of the '627 patent, as necessarily being performed by the codec circuit that is disclosed in the specification's preferred embodiment. Microsoft responds that the court did not interpret the term "digitizing" as necessarily being performed by the codec circuit. Thus, there is no dispute regarding this term, and we affirm the district court's construction of the term "digitizing" as meaning simply "converting analog signals into digital signals."

CONCLUSION

For the foregoing reasons, we conclude that the district court properly construed the asserted claims of the '649, '627, and '532 patents to be limited to communications over a telephone line and to exclude communications over a packet-switched network such as the Internet. However, we revise the court's constructions of the limitations relating to "headers," "multiplexing," and "speaker phone[s]." Nonetheless, because Multi-Tech's stipulations of noninfringement under the affirmed claim construction are unaffected by our changes to other aspects of the district court's claim construction, the final judgments of the district court are

AFFIRMED.

Appendix A

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

03-1138

MICROSOFT CORPORATION,

Plaintiff-Appellee,

v.

MULTI-TECH SYSTEMS, INC.,

Defendant-Appellant.

03-1139

MULTI-TECH SYSTEMS, INC.,

Plaintiff-Appellant,

v.

NET2PHONE, INC.,

Defendant-Appellee.

RADER, *Circuit Judge*, dissenting.

Appendix A

This court today concludes that the invention claimed in any patent sharing the specification of the '649, '627, and '532 patents cannot encompass the use of a packet-switched communications network like the Internet. As all parties agree, the claim language in no way rules out the use of a packet-switched network. The specification also does not foreclose use of the Internet. The prosecution history of the '627 patent falls far short of a "clear and unambiguous" disclaimer of Internet coverage (as the majority finds), but rather suggests the contrary conclusion. Finally, this court today dismisses the rule in *Georgia-Pacific Corp. v. United Gypsum Co.*, 195 F.3d 1322 (Fed. Cir. 1999) and applies the prosecution history of a later patent to limit the narrower claims of a patent issuing before such statements were made. For these reasons, I must respectfully dissent.

This court today asserts that the language in the specification regarding "over" and "through" a telephone line somehow requires the claims to cover only those communication networks where nothing but a telephone line lies between the two end sites. To my eyes, that leap in logic is akin to Evel Knievel jumping the Snake River Gorge on a motorcycle. Like Mr. Knievel, this court's conclusion falls short. In the first place, this limitation does not appear anywhere in the claims. In addition, nothing in this record indicates that a person of skill in this art would find that limitation in the specification.

When I connect to the Internet (a packet-switched network) at home using my modem, I do it "over a telephone line." When I send email to my colleagues from home, I do it "through a telephone line" as well as across the Internet.

Appendix A

If I travel over the river and *through* the woods to grandmother's house, this court would apparently conclude that I have traveled through nothing but rivers and woods. The terms "over" and "through" do not denote the sole medium of transmission or travel. If a person asks me to send them a file "over" the Internet, that request certainly would not preclude the use of a telephone line connected to a modem connected to the Internet. In sending the file, I would be sending data over my telephone line as well as over the Internet. The record contains no evidence to support the leap that "over a telephone line" must mean exclusively over a telephone line.

Most of the claims at issue never refer to the communication network between the end sites of the system. The claims focus on the "ends" of the communication system. The "middle" portion is essentially irrelevant to the invention. Claim 1 of the '532 patent is a method claim directed to "multiplexing," "transmitting," "receiving," and "demultiplexing" voice and video data. Claim 1 of the '649 patent identifies a method that places headers on outgoing voice and computer data packets, and then multiplexes, transmits, receives, and demultiplexes the data packets. These claims address what happens at each end of the communication system, not the travel routes for the packets between the ends.

This court today, however, goes beyond merely importing a limitation from the specification into the claims. First the court manufactures an unreasonable limitation out of vague specification references to "over" and "through." Then the court imports that unstated limitation into the claims. At most,

the specification can be read to require that all of the claims require the use of a telephone line in the transmitting, sending, or receiving elements. To my eyes, this court leaps into thin air when it says that the claims require the exclusive use of telephone line transmission.

To bolster the absence of limitation in the claims or specification, the court stretches to find a clear and unambiguous disclaimer in the prosecution history of the '627 patent. To the contrary, the examiner, who actually participated in that history, considered the applicant's statements regarding the '627 patent and found that the claims do not limit themselves to a standard telephone line. In fact, because the claims encompassed more than a mere telephone connection, the examiner renewed a rejection. In response to the examiner's rejection in light of the Lewen reference, the applicant stated that Lewen operates using a "local area network (LAN)" requiring the data packets to "circulate around the LAN until reaching either the gateway or the node" where they can be sent to a remote site. The applicant explained that the '627 patent claims a system that does not use a LAN, but "operates over a standard telephone line . . . and establishes a point-to-point connection between . . . each end of the line."

The examiner responded by renewing the rejection and explaining that "the claims do not recite a limitation of a POTS telephone connection" and that "Lewen's token ring transmission medium is a telephone line in the sense that it carries voice between telephones [] separated by some distance." Thus, the examiner did not limit the invention to an exclusive telephone line connection. The examiner even

considered the LAN in Lewen to satisfy the telephone connection proposed by the applicant. The LAN in Lewen connects to a packet-switched network.

Ultimately, the applicant amended the '627 claims to include the limitation of a modem. At that point, the PTO allowed the claims. The entire discussion in this prosecution history focused on the structure at each end of the communication system, not the middle medium of transmission. The applicant unambiguously disclaimed the use of a LAN and any system that does not connect modems at each end site. Neither the applicant nor the PTO, however, considered that disclaimer to extend to the use of a packet-switched network between sites. How can such circumstances show a clear and *unambiguous* disclaimer?

Rather than disclaiming connection to the Internet, the prosecution history more convincingly suggests that the inventor and the PTO saw these inventions as directly relevant to the Internet. The applicant eventually added the term "modem" to the '627 patent claims in order to distinguish the LAN in the Lewen reference. At the time of this amendment, a modem was the common and accepted way to connect to the Internet over a standard telephone line. U.S. Patent No. 5,594,490, which issued January 4, 1997, states: "Modem 45 communicates with a corresponding modem 17 at distribution station 3 via a conventional point-to-point land-link such as a public switched telephone network (PSTN) *or internet*." Col. 9, ll. 47-56 (emphasis added). Contrary to this court's conclusion, a person of ordinary skill in the art at the time of invention would consider the addition of a modem as a clear indication that

the inventor intended to connect the invention to packet-switched networks, such as the Internet. Even though modems connect to the Internet, as even the examiner acknowledged, this court emphasizes the "point-to-point" phrases in the prosecution history to exclude the Internet. This conclusion leaps to assume that the Internet does not allow point-to-point connections. The record, however, indicates exactly the opposite. As cited above, U.S. Patent No. 5,594,490 describes a point-to-point connection using the Internet. Moreover, according to Microsoft's Computer Dictionary of 1997, Third Edition, a point-to-point communication protocol is "[a] data link protocol developed . . . in 1991 for dial-up telephone connections, such as between a computer and the Internet." Thus, within the context of this art, and at the time of the amendment, the term point-to-point referred to a variety of communication networks, including the Internet.

As a question of law, however, this court's conclusion significantly erodes the requirement that a disclaimer of subject matter must be clear and unambiguous. *See, e.g., Schwing GmbH v. Putzmeister Aktiengesellschaft*, 305 F.3d 1318, 1324-25 (Fed. Cir. 2002) ("Prosecution history . . . cannot be used to limit the scope of a claim unless the applicant took a position before the PTO that would lead a competitor to believe that the applicant had disavowed coverage of the relevant subject matter.") This record – the examiner's responses and understanding, the definitions of "point to point" in the patents and the art, and more – do not show clarity and a lack of ambiguity, to say the least. *See Omega Engineering, Inc. v. Raytek, Corp.*, 334 F.3d 1314, 1326 (Fed. Cir. 2003) ("To balance the importance of public notice and the right of patentees to seek broad patent

coverage, we have thus consistently rejected prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope.") The only subject matter unambiguously disclaimed in this case was a connection other than a modem-telephone line at each communication end.

To make this court's conclusion a longer leap, the alleged disclaimer by its terms applies only to the "modem" amendment that distinguished Lewen. Only the '627 patent's claims use the term "modem." In fact, the '627 patent was the only patent in this case rejected in light of Lewen. The '649 and '532 patents actually relied on Lewen as prior art. The examiner did not cite Lewen to reject the claims in those patents. The other patents do not even refer to a "modem." Because the inventions in the various patents are different, the '627 patent needed to distinguish Lewen while the others did not. The '649 patent claims the transmission of packetized voice and computer data. The '532 patent claims the transmission of packetized voice and video data. In contrast, the '627 patent claims only the transmission of packetized voice data. According to the PTO, the transmission of voice data only was not sufficiently narrow to avoid the Lewen reference. Thus, the applicant added the limitation of a modem connected to a standard telephone line. This simply illustrates that the broad claims of one patent, in this case the '627, may require an additional limitation to avoid prior art, while narrower claims in related patents do not need the same limitation to avoid the same prior art. The '627 amendment does not explain the reason that this court extends the limitation to narrower claims in the other patents.

Appendix A

By way of illustration, assume three patents (A, B, and C) share a common specification directed to a method for hanging a picture. Patent A claims an attaching step and a leveling step. Patent B claims an attaching step and a centering step. Patent C claims only the attaching step. The prior art contains a reference to attaching pictures using nails. Because they contain limitations beyond attaching, patents A and B issue without rejection. Patent C, however, is rejected in light of the prior art. To distinguish the prior art, the applicant clarifies the attaching step is limited to using Velcro, not nails. Under what logic would a court limit the claims in Patents A and B to Velcro based on the later and inapplicable prosecution history of Patent C? That, however, is exactly what the majority does in this case.

Finally, the majority essentially disregards the holding of *Georgia-Pacific*. In this case, for the first time, this court applies the prosecution history of one patent to limit the claims of a related patent that was allowed before the creation of the prosecution history at issue. The '649 patent issued before the prosecution history of the '627 patent. *Georgia Pacific* states that for an applicant "to be bound by the statement made to the PTO in connection with a later prosecution of a different patent, the statement would have to be one that the examiner relied upon in allowing the claims in the patent at issue." 195 F.3d at 1333. In this case, the statements during the prosecution of the '627 patent could not have influenced the allowance of the '649 patent, because the '649 patent issued before those statements occurred.

In short, I cannot support this court's many leaps of illogic. I would not import the exclusive telephone line

limitation, if it even exists in the specification, into the claims. Moreover, I cannot find a clear and unambiguous disclaimer in the prosecution history of the '627 patent. Even if the modem amendment in that patent disclaimed subject matter, I cannot find a justification to apply that limitation to the unambiguous claims of the '649 and '532 patents, which cover different inventions. For these reasons, I cannot join this opinion of the court.

APPENDIX B — MEMORANDUM OPINION AND ORDER OF THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF MINNESOTA DATED AUGUST 16, 2002

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

MEMORANDUM OPINION AND ORDER
Civil No. 00-1412 ADM/RLE

Microsoft Corporation,

Plaintiff,

v.

Multi-Tech Systems, Inc.,

Defendant.

MEMORANDUM OPINION AND ORDER
Civil No. 00-1627 ADM/RLE

Multi-Tech Systems, Inc.,

Plaintiff,

v.

Net2Phone, Inc.,

Defendant.

Appendix B

I. INTRODUCTION

On April 25, 2002, the undersigned United States District Judge heard evidence and argument on the claim construction of United States Patent No. 5,452,289 ("the '289 Patent"), United States Patent No. 5,471,470 ("the '470 Patent"), United States Patent No. 5,600,649 ("the '649 Patent"), United States Patent No. 5,764,627 ("the '627 Patent"), and United States Patent No. 5,790,532 ("the '532 Patent"). The '289 Patent is the parent patent from which the five; patents at issue in this case followed. As such, each of the five patents share the same specification. The five patents are thus not patentably distinct. All five patents share the '289 Patent's disclosure and priority date of January 8, 1993, and all expire on the same date. Therefore, the '289 Patent and its specification are the heart of this claim construction analysis. Although the parties are involved in two separate lawsuits, the relevant patents and claims in dispute are substantially the same. All parties presented evidence at the same hearing, and this Order is applicable to both cases.

II. BACKGROUND

Multi-Tech Systems, Inc. ("Multi-Tech"), accuses Microsoft Corporation ("Microsoft") of infringing all five patents, and Net2Phone, Inc. ("Net2Phone"), of infringing four of the patents. The patents relate to personal computing based systems and methods used to simultaneously transmit both voice and data information using a modem connected to a standard telephone line. Multi-Tech charges that the software applications of Microsoft and Net2Phone,

which utilize computer networks, infringe its patents. Claim construction is necessary prior to trial at which issues of patent infringement will be determined.

III. DISCUSSION

A. Legal Standard

Claim construction, the interpretation of the patent claims that define the scope of a patentee's rights under a patent, is a matter of law exclusively for the court. *Markman v. Westview Instruments. Inc.*, 52 F.3d 967, 970-971 (Fed. Cir. 1995), *aff'd* 517 U.S. 370 (1996).[1] The language of the claims is the starting point for all claim construction analysis, because it frames and ultimately resolves all issues of claim interpretation. *Robotic Vision Sys., Inc. v. View Eng'g, Inc.*, 189 F.3d 1370, 1375 (Fed. Cir. 1999); *Abtox. Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023 (Fed. Cir. 1997). Claims must be read in view of the specification of which they are a part. *Markman*, 52 F.3d at 979. The description of the invention given in the specificatien may serve as a dictionary to define terms used in the claims. *Id.* A patentee acting as his own lexicographer[2] must clearly define any special definitions in the specification.[3] *Id.* at 980.

1. Federal Circuit decisions on claim construction have "national *stare decisis* effect." *Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 716 (Fed. Cir. 1998).

2. While patentees can define terms of a claim contrary to their ordinary meaning, "nothing in any precedent permits judicial redrafting of claims." *Becton Dickinson and Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 799 (Fed. Cir. 1990); *Process Control Core. v. HydReclaim Corgi*, 190 F.3d 1350, 1357 (Fed. Cir. 1999).

(Cont'd)

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A court should also consider the patent's prosecution history, as it is "of primary significance in understanding the claims." *Id.* Prosecution history should be used to understand the language in the claims, but not to enlarge, diminish or vary the limitations in the claims. *Id.*

Claims speak to those skilled in the art. *Budde v. Harley-Davidson. Inc.*, 250 F.3d 1369, 1376 (Fed. Cir. 2001); *Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994). When the meaning of words in a claim is disputed, the specification and prosecution history can provide relevant information about the scope and meaning of the claim. *Electro*, 34 F.3d at 1054. However, "claims are not to be interpreted by adding limitations appearing *only in* the specification." *Id.* (emphasis added); *Laitram Corp. v. Cambridge Wire Cloth Co.*, 863 F.2d 855, 865 (Fed. Cir. 1989) ("References to a preferred embodiment [in a specification] are not claim limitations."). Particular embodiments appearing in a specification are not read into claims if the claim language is broader than the embodiment. *Id.* Therefore, a specification must *require* a limitation in order to read the limitation into the claims. *Id.* "If everything in the specification were required to be read into the claims, or if structural claims were to be limited to devices operated precisely as a specification-described embodiment is operated, there would be no need for claims." *SRI Int'l v.*

(Cont'd)

3. A court should generally not use non-scientific dictionaries for defining technical words, as general usage dictionaries may fail to provide satisfactory constructions of technical claim terms in dispute. *AFG Indus.. Inc. v. Cardinal IG Co.*, 239 F.3d 1239, 1247-1248 (Fed. Cir. 2001).

Matsushita Electric Corp. of America, 775 F.2d 1107, 1121 (Fed. Cir. 1985). "It is the *claims* that measure the invention." *Id.* (emphasis in original).

1. Intrinsic and Extrinsic Evidence

The interpretation of a term can ultimately be determined and confirmed only with "a full understanding of what the inventors actually invented and intended to envelop with the claim." *Renishaw PLC v. Mamoss Societa' Per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id.* A claim construction does not become persuasive by following a certain rule, but by defining terms in the context of the whole patent. *Id.* The intrinsic evidence of record (the claims, the specification, and the prosecution history) is the most significant source of the legally operative meaning of disputed claim language, and in most situations will resolve any ambiguity in a disputed claim term. *Vitronics Corp. v. Conceptronic. Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). In such circumstances, "it is improper to rely on extrinsic evidence." *Id.* However, "*Vitronics* does not prohibit courts from examining extrinsic evidence, even when the patent document is itself clear." *Pitney Bowes. Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (1999). "Rather, *Vitronics* merely warned courts not to *rely* on extrinsic evidence . . . to contradict the meaning of claims discernable from . . . the intrinsic evidence." *Id.* (emphasis in original); *Key Pharm*, 161 F.3d at 716

(disapproving of using extrinsic evidence to arrive at a claim construction "clearly at odds with" the claim construction mandated by the intrinsic evidence).

Thus, while "reliance" on extrinsic evidence is only proper when claim language remains genuinely ambiguous after consideration of the intrinsic evidence, it is "entirely appropriate, perhaps even preferable, for a court to consult trustworthy extrinsic evidence to ensure that the claim construction . . . is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field." *Pitney Bowes*, 182 F.3d at 1308; Key *Pharms.*, 161 F.3d at 716 ("[T]rial courts generally can hear expert testimony for background and education on the technology implicated by the presented claim construction issues. . . ."). Extrinsic evidence including expert testimony may assist to align the court's understanding of the technical aspects of the patent with the understanding of one skilled in the art. *Pitney Bowes,* 182 F.3d at 1308; *U.S. Indus. Chems. v. Carbide & Carbon Chems. Corp.*, 315 U.S. 668, 678 (1942). However, "if the meaning of a disputed claim term is clear from the intrinsic evidence . . . it cannot be altered or superseded by witness testimony or other external sources simply because one of the parties wishes it were otherwise." *Key Pharms.*, 161 F.3d at 71 6. The role of extrinsic evidence is to enhance the court's understanding of the patent language, not to vary or contradict the terms of the claims. *Markman*, 52 F.3d at 981.

Appendix B

B. Disputed Apparatus Claims

Multi-Tech asserts ten claims from the five patents, eight of which are independent claims, and two of which are dependent claims. The ten claims divide into two categories: method claims ('627, claims 7 and 13; '649, claim 1; '532, claim 11) and apparatus claims ('289, claim 1; '470, claim 1; '532, claim 1; and '627, claims 1, 2 and 5). The text of each disputed claim is lengthy, however, there are specific claim elements that are recurrent throughout. Construing the claim elements and their terms individually will assist in construction of the claims as a whole. The claim elements are analyzed below.

1. '289 Patent, Claim 1

a. A Multifunction Communication System for use with a Personal Computer, the Personal Computer Having a Processor, Memory, and a Peripheral Data Store, Comprising:

The parties agree that this preamble is a claim limitation. *See* Lewis Decl. Ex. 12 Tab A at 1; *Id.* Ex. 13 Tab A at 2. The "multifunction communication system" includes the communication module hardware, as well as its control software, for use with a personal computer. '289, Abstract; '289, claim La; '289, col. 1:37-40 ("The subject of the present multiple inventions is a personal communications system which includes components of software and hardware operating in conjunction with a personal computer."). The hardware components include "telephone communication equipment, digital signal processors, and hardware to enable

both fax and data communication with a hardware components [sic] at a remote site connected through a standard telephone line. The functions of the hardware components are controlled by control software operating within the hardware component and from the software components operating within the personal computer." *Id.* at col. 1: 46-54. The claim language and the specification establish this element requires the multifunction communication system to be separate from the personal computer. '289, col. 8: 3-11; id. at col. 36: 66-68. The disclosure describes a "complex computer assisted communications system" consisting of multiple component parts. '289, col. 1: 35-37. "the term "personal computer" means a stand-alone computer (not sharing the processing or disk resources of another computer) designed for use by one person at a time, and excludes mainframe computers or mini-computers. Multi-Tech Br. App. I Ex. 19 (Microsoft Computer Dictionary 4th Ed. 339 (1999)). The personal computer must have a processor, memory and peripheral data store.

b. A Communications Module Connected to the Personal Computer, the Module Comprising:

This element is literally met by a separate hardware module linked to a personal computer that contains the items in the sub-elements that follow in '289, claim 1, elements 1.a(1)-1.a(7).[4] *See* Lewis Decl. Ex. 13 Tab A at 5. The

4. These elements are comprised of communications interface means, telephone line interface means, telephone voice interface means, full-duplex conversion means, compression means and main (Cont'd)

specification states that "[a] personal communications system is described which includes components of software and hardware operating in conjunction with a personal computer. The user interface control software operates on a personal computer, preferably within the Microsoft Windows environment." '289, Abstract. "The hardware components of the [communications module] are designed to be controlled by an external computing device such as a personal computer." *Id.* at col. 36: 66-68. The specification describes that the inventions "are embodied in a commercial product by the assignee, Multi-Tech Systems, Inc. The software component operating on a personal computer . . . , while the hardware component . . . is sold under the commercial name of MultiModemPCA. . . ." '289, col. 6: 21-28. Therefore, the hardware component, the "communications module," is separate from, but connected to, the "personal computer."

Multi-Tech argues that this element can also be met under the doctrine of equivalents where the functionality of the items in sub-elements 1.a(1)-1.a(7) is provided by the hardware or software of a current personal computer. Lewis Decl. Ex. 13 Tab A at 5. Such an argument raises an issue of infringement rather than claim construction. *Davco Prods.. Inc. v. Total Containment Inc.*, 258 F.3d 1317, 1328 (Fed. Cir. 2001); *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1354 (Fed. Cir. 1998). Infringement issues will not be addressed in this Order.

(Cont'd)

control means. '289, claim 1, elements 1.a(1)-1.a(7). The '532 Patent also includes a digital signal processor means in place of the compression means. '532, claim 1, element 1.e.

c. Communications Interface Means Connected for Communicating to the Personal Computer for Transferring Data Between the Personal Computer and the Communications Module

The parties dispute whether three claim elements within claim 1 of the '289 Patent are subject to a means-plus-function form of construction governed by 35 U.S.C. § 112, ¶ 6. The first of these appears here: communications interface means. The "communications interface means" claim element appears in the '289 Patent, claim 1, element 1.a(1), the '470 Patent, claim 1, element 1.a, and the '532 Patent, claim 1, element 1.a. The other two disputed elements, telephone line interface means and telephone voice interface means are discussed below.

i. Application of § 112, ¶ 6

A claim element expressed in means-plus-function terminology is interpreted under 35 U.S.C. § 112, ¶ 6:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6 (2001). Whether or not a claim limitation falls under § 112, ¶ 6 is a question of law. *Personalized Media*

Communications. LLC v. Int'l Trade Comm'n, 161 F.3d 696, 702 (Fed. Cir. 1998).

A claim element containing the word "means" that recites a function is presumed to be a means-plus-function element subject to § 112, ¶ 6. *Envirco Corp. v. Clestra Cleanroom, Inc.*, 209 F.3d 1360, 1364 (Fed. Cir. 2000). However, this presumption is overturned "if the claim itself recites sufficient structure to perform the claimed function." *Id.* If a claim does not qualify for § 112, ¶ 6 treatment, "it is not limited to the structure corresponding to the claimed function as 'described in the specification and equivalents thereof.'" *Id.* at 1365 (citing 35 U.S.C. § 112, ¶ 6). In such a case, the specification merely informs the claim construction, while the claim language itself governs the meaning of the claim. *See id.*

ii. Communications Interface Means

The first question is whether or not the claim element "communications interface means" is a means-plus-function element. Multi-Tech argues § 112, ¶ 6 does not apply because the term "interface" denotes structure. The claimed function for this element is to connect the personal computer to the communications module for transferring data. The claim recites the communications interface as the structure accomplishing this connection. An "interface" is the point at which a connection is made between two elements so that they can work with one another. Lewis Decl. Ex. 6 (Microsoft Press Computer Dictionary 192 (1991)). "In hardware, interfaces are cards, plugs, and other devices that connect pieces of hardware with the computer so that information can be moved from place to place." *Id.*

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Microsoft[5] argues that the term "interface," standing alone, is not a sufficiently definite structure to overcome the presumption that § 112, ¶ 6 applies, relying on *IMS Tech., Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1430 (Fed. Cir. 2000) (holding that the claim element "interface means for transferring . . . and for recording . . ." was subject to the § 112, ¶ 6 presumption). However, unlike *IMS*, Multi-Tech directly challenges the means-plus-function status of the claim, and, furthermore, the term "interface" does not stand alone, but is modified. The term "communications interface" identifies a structure sufficient to perform the claimed function. This claim element is not a means-plus-function element requiring interpretation under § 112, ¶ 6; it will be construed under the ordinary rules of claim construction.

The parties agree that this claim element is literally met where the communications interface means is an RS232 serial interface. Lewis Decl. Ex. 13 Tab A at 6; *Id.* Ex. 12 Tab A at 3. This is supported by the language in the specification that "[t]he interface between the main controller circuit 313 and the personal computer is through SIO circuit 314 and RS232 serial interface 315." '289, col. 18: 46-48. The specification also indicates that the RS232 connection is "used to generate and receive the appropriate RS232 standard signals for a serial communications interface with a personal computer." *Id.* at col. 18: 50-55.

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5. For purposes of brevity, it is understood that Net2Phone joins Microsoft in its arguments regarding claim construction in this case. Net2Phone Br. at 1.

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Multi-Tech asserts that because '289, claim 6, refers to a "bus," the communications interface must also be defined to include a bus. However, claim 6 of the '289 Patent does not state that the communications interface *itself* is a bus, but rather extends the claimed system to include instances where the communications interface means is connected to a bus of the personal computer. *Id.* at col. 50: 50-51. Therefore, while the claim language does not exclude a bus from the types of possible interfaces, the construction of the term "communications interface" is not required to include a bus simply based on the language of '289, claim 6.

Multi-Tech also argues that under the doctrine of equivalents, this element is met where the physical interface is a bus, and that the communications module need not be physically separate from the personal computer because various portions of the hardware and software of a modern personal computer perform the same functions. Lewis Decl. Ex. 13 Tab A at 6-7. Again, this raises infringement issues not relevant to claim construction, because whether an accused device performs the identical function "or an equivalent thereof" is a question of fact. *IMS*, 206 F.3d at 1430; *see also Dayco*, 258 F.3d at 1328; *Bai*, 160 F.3d at 1354.

d. Telephone Line Interface Means for Connection to a Telephone Line and for Full Duplex Digital Communications Over the Telephone Line

i. Telephone Line Interface Means

The parties dispute whether this claim element is in means-plus-function format. As above, the reference to "telephone line interface" is a specific reference to a type of interface, namely a "telephone line" interface, that identifies a structure sufficient to perform the claimed function of connecting the invention to a telephone line. Therefore, this claim element is not a means-plus-function element requiring interpretation under § 112, ¶ 6, and will be construed under the ordinary rules for claim construction.

"[A]s a general rule, all terms in a patent claim are to be given their plain, ordinary and accustomed meaning to one of ordinary skill in the relevant art." *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). A "telephone line" means a standard telephone line, or a POTS (plain old telephone service) line. The specification supports this construction. "Hardware components 20 communicate over a standard telephone line 30 to one of a variety of remote sites. . . . Those skilled in the art will readily recognize the wide variety of communication interconnections possible with the present system by reading and understanding the following detailed description." '289, col. 5: 62-col. 6:11. The telephone line interface means is a physical interface for connecting to a telephone line. "The telephone line interface circuit 309 seizes the telephone line to make the

telephone connection." '289, col. 10: 16-18. This distinguishes the telephone line interface from the telephone line itself. Claim 1 indicates that the interface is an element that comprises the "communications module," and therefore must be a part of the module. The specification explains that the invention's functions are "all implemented in the hardware components of FIG. 3." '289, col. 9: 21-23. "A telephone connection is established through the telephone line interface circuit 309 and communication is enabled." *Id.* at col. 9: 37-39.

Microsoft argues that because incoming information is "received through the telephone line interface circuit 309 and passed to the main controller circuit 313 via data pump DSP circuit 311," the telephone line interface means cannot be a telephone jack alone. *Id.* at col. 13: 29-32. Microsoft suggests the interface means must be both "a data pump modem *and* a jack." Microsoft Br. at 32 (emphasis in original). Multi-Tech argues that the telephone line interface circuit 309 is "distinctly separate" from the data pump circuit 311. Multi-Tech Reply Br. at 21. The claim language identifies a "telephone line interface means," which is shown in the specification in Figure 3 to be separate from the data pump DSP circuit 311. '289 FIG. 3. While the data pump modem may work in conjunction with the telephone line interface, the interface itself is distinct from the modem.

ii. Full Duplex Digital Communications

This claim element appears in the '289 Patent, claim 1, element 1.a(2), '470 Patent, claim 1, '627 Patent, claim 1, and '532 Patent, claim 1. The '532 Patent, claim 11, also

includes the substantially similar language "full duplex transmission of voice and video data information."

Full-duplex, standing alone, means a "*simultaneous* two-way independent *transmission in* both directions." Lewis Decl. Ex. 8 (American National Dictionary for Information Processing Systems 43 (1982)) (emphasis in original). That is, a full-duplex transmission involves communication between the sender and receiver simultaneously, in both directions *at once*, as opposed to one direction at a time. *See id.* Ex. 6 (Microsoft Press Computer Dictionary 119) (1991)) (emphasis added). The prosecution history of Multi-Tech's '627 Patent reveals "[f]ull-duplex, packetized voice communications as claimed . . . requires simultaneous bi-directional independent asynchronous transmission of voice packets between two modems." Lewis Decl. Ex. 11 at 5 (November 4, 1997, Amendment & Response Under 37 C.F.R. § 1.116). "[T]hrough statements made during prosecution . . . an applicant for a patent . . . may commit to a particular meaning for a patent term, which meaning is then binding in litigation." *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1158 (Fed. Cir. 1997).

Full-duplex digital communication, therefore, is the ability to bi-directionally transmit and receive digital information simultaneously.

iii. Communications Over the Telephone Line

Microsoft asserts that claim 1 of the '289 Patent requires an end-to-end direct telephone line connection across the

entire length of the connection between the local user's communication module and the corresponding system at a remote site, where information does not travel through any intermediate nodes, such as other computers, routers, or networks. Microsoft Br. at 13; Lewis Decl. Ex. 12 Tab A at 5. The claim language describes full-duplex digital communication as occurring "over the telephone line," which initially suggests that the communication utilizes the telephone line from end to end. '289, claim 1, element 1.a(2).

The '289 Patent, claim 1, states that the communications system "initiat[es] a telephone call to a remote site."[6] '289, claim 1, element 1.b. Claim 7 of the '627 Patent also describes that the system sends outgoing information "to a remote site over a telephone line using a modem." '627, claim 7, element 7.d. Microsoft argues that the requirement of initiating a call to the remote user cannot include a dial-up Internet connection where the call is initiated to the Internet Service Provider (ISP). Microsoft Br. at 14.

Essential to this argument is an understanding of the difference between packet switched networks and the Public Switched Telephone Network ("PSTN"). The PSTN is the worldwide voice telephone network accessible to anyone with a telephone. Lewis Decl. Ex. 7 (Newton's Telecom Dictionary 724 (1992)). It is a common carrier network providing circuit switching between public users; it is a circuit-switched network where a telephone line connection over a circuit is established from one user to the other where "the users have exclusive and full use of the circuit until the connection is

6. Significantly, this limitation appears only in the '289 Patent, not in any of the other Patents.

released." *Id.* at 190, 724. This process creates a physica link between the users where an open line is maintained until abandoned. Lewis Decl. Ex. 6 (Microsoft Press Computer Dictionary 63 (1991)). Standard telephone lines utilize the PSTN.

The Internet and most local area networks (LANs) are packet-switched networks a packet-switched network does not leave open a circuit connection between users on a dedicated basis as does a circuit-switched network. Lewis Decl. Ex. 7 (Newton's Telecom Dictionary 191 (1992)). The packets, small units of information broken down from long messages, include both data and a header containing an identification number, and, source and destination addresses. Lewis Decl. Ex. 6 (Microsoft Press Computer Dictionary 253 (1991)). Packets are relayed through stations on a computer network where each packet may travel a different path and arrive at the destination at different times and out of order. *Id.* Because each packet has its own unique identification and destination address, the data is reassembled in proper sequence at its destination. Lewis Decl. Ex. 7 (Newton's Telecom Dictionary 656 (1992)). A user may connect to a packet-switched network like the Internet using a circuit-switched dial-up telephone line.

Microsoft relies in part on representations made by Multi-Tech to the Patent Office explaining the functionality of the '627 Patent. Multi-Tech stated that its invention sends information "directly from the communications system through the POTS line to a receiving communications system at the other end of the line." Lewis Decl. Ex. 10 at 2-3 (May 12, 1997, Amendment and Response, '627 Patent file

history). This characteristic distinguished its invention from U.S. Patent No. 5,341,374 (the "Lewen Patent"), which disclosed an invention using a local area network (LAN) to integrate voice, data and image information over a single transition link, where the information packets circulated around the LAN. *Id.* at 2. By contrast, Multi-Tech described its invention as establishing "point-to-point links." *Id.* at 3.

During the prosecution of the '627 Patent, Multi-Tech described the communications system as operating over a standard telephone line. It stated:

> Such a telephone line is commonly referred to in the art as a 'plain old telephone service' (POTS) line and establishes a point-to-point connection between telephone equipment on each end of the line. . . . Applicants' invention converts analog speech signals received through a local speaker phone to digital voice signals, packages the digital voice signals into packets, and transmits the packets across a POTS line to a remote site where the process is performed in reverse.

Lewis Decl. Ex. 10 at 1-2. Multi-Tech reiterated in a subsequent letter to the Patent Office that the invention as stated in the '627 patent, claims 38, 44, 48 and 50, sends information "through a point-to-point modem connection between sites," where "[s]uch a point-to-point link is not comparable to Lewen's LAN." Lewis Decl. Ex. 11 at 5 (Amendment & Response Under 37 C.F.R. § 1.116, '627 Patent file history). The specification states that the hardware components enable communication with another hardware

component "at a remote site connected through a standard telephone line." '289, col. 1: 49-50. The hardware components enable communication "over standard telephone lines." '289, col. 2: 45-46. Microsoft argues that this language requires a direct connection via a telephone line from end to end.

Multi-Tech now argues the type of network is not a claim limitation and that the telephone line can be connected from the module to a communications network. Lewis Decl. Ex. 13 Tab A at 9. Multi-Tech avers that the claims describe a connection to a telephone line, and transmission or communication over a telephone line at each end, but not the telephone line itself. Multi-Tech Reply Br. at 8. Multi-Tech argues that the statements made during the prosecution of the '627 Patent are consistent with this understanding because: (1) Lewen does not use a telephone line to connect to a network, (2) Multi-Tech did not disclaim connecting to a packet-switched network, (3) Lewen transmits voice only to the telephone line, (4) Lewen transmits analog voice to the telephone line, and (5) "telephone line" is not limited to a direct physical connection between the local and remote sites. Multi-Tech Reply Br. at 10. In short, Multi-Tech argues that "[w]hen distinguishing over Lewen, Multi-Tech gave up connecting its system to a token-ring LAN, which is subsequently connected to a telephone line. Multi-Tech did not give up connecting its system to a telephone line, which is subsequently connected to a network." *Id.* at 11. Multi-Tech asserts that its statements to the Patent Office describe only the components of its invention functioning before or up to the point where the connection to the telephone line is made.

Id. at 12. However, in its November 4, 1997, Amendment & Response Under 37 C.F.R. § 1.116, Multi-Tech describes its invention as sending voice packets "through a point-to-point modem connection between sites." Lewis Decl. Ex. 11 at 5. Multi-Tech also distinguishes its Patent by attributing to it "packetized voice transmission between modems." *Id.* at 6. This language describes the nature of the connection between both the sending and receiving ends of the communication, not simply the transmission of information from inside the module to the start of the telephone line at the sending end, or from the end of the telephone line at the receiving end.

Multi-Tech claims that the previous explanations were to distinguish Lewen on the basis of the information path between the computer and voice apparatus and the telephone line, not what happened to the data once it reached the telephone line. Multi-Tech Br. at 23. The Lewen Patent discloses a LAN that integrates voice, data and image information over a single transmission link using a IEEE 802.5 token-ring standard specification, which defines a distributed packet switching system. Lewen Patent, col. 6: 45-61. Packets circle around the local ring of nodes, and the LAN connects to an external telephone network through a gateway attached to the LAN as a node. *Id.* at col. 6: 67-68, col. 16: 33-35. Multi-Tech explained to the Patent Office during prosecution that, unlike Lewen, where the voice packets exchanged between a telephone on the external network and a node on the LAN must still circulate around the LAN until reaching either the gateway or the node, its invention instead sends voice packets through a point-to-point modem connection. Lewis Decl. Ex. 11 at 5

(November 4, 1997, Amendment & Response).[7] Multi-Tech illustrates that in Lewen, information must circulate around a token ring LAN and pass through a gateway *before* ever reaching a telephone line, whereas the present invention sends information directly to a telephone line from the hardware module. Multi-Tech Br. at 22.

After Multi-Tech added the requirement that its invention operate by using a modem connected to a telephone line, the claims were allowed by the examiner. Multi-Tech conceded during oral argument that use of a modem is the critical element in distinguishing its patents from Lewen, and that use of a modem is a limit that is strictly required for the '627 Patent. However, Multi-Tech asserts the type of communications network through which information travels after it reaches the telephone line connected to the modem is not a claim limitation, and that Lewen is compatible with all of its other patents, except '627. More simply put, Multi-Tech argues it disclaimed Lewen's token ring network before the information reaches the telephone line, but not any network after the telephone line. This is partially supported by the claim language stating that the telephone line interface is a means "for connection *to* a telephone line." '289, claim 1, element 1.a(2) (emphasis added).

Multi-Tech further relies on the illustration of Figure 1 of the specification. The illustration shows a straight line

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7. Multi-Tech argues that the arguments made during prosecution of the '627 Patent do not apply to the other patents-in-suit. However, because the identical specification for the '627 Patent was used for the others, Multi-Tech's explanations of the invention are applicable to each of the patents.

connecting the computer terminal to the communications module, and a jagged line connecting the communications module to a variety of possible destinations. '289, FIG. 1. Multi-Tech argues that the straight line from the computer to the module is intended to represent a direct connection, while the jagged line, labeled 30, is something other than a direct connection. The specification identifies 30 as the "standard telephone line." '289, col. 6: 6-7. Microsoft argues that the standard telephone line 30 constitutes a direct connection. The specification identifies four alternative hardware components for the remote site: a fax machine, a like-configured communications module, a personal computer with a remote modem, and a standard telephone. '289, col. 5: 64-6: 7. The specification describes the module as "communicat[ing] over a standard telephone line" in each of the four possible connections. *Id.* Microsoft argues that Figure 1 does not allow for the communications module to connect to an ISP or the Internet, or for the remote site to be a communications network. Microsoft relies on Multi-Tech's statement that the invention "transmits the packets across a POTS line to a remote site. . . ." Lewis Decl. Ex 10 (May 12, 1997, Amendment and Response at 2); *see Ballard Med. Prods. v. Allegiance Healthcare Corp.*, 268 F.3d 1352, 1359 (Fed. Cir. 2001) (holding that a particular claim interpretation disclaimed by the patentee during prosecution can estop an inconsistent assertion by the patentee during litigation).

Claim 1.a(2) calls for full-duplex digital communications "over the telephone line." '289, claim 1. Multi-Tech argues that this does not mean exclusively over the telephone line, because the specification describing transmission of packets

of digital data "over the telephone line interface" indicates that data can travel over the telephone line interface and then to other types of connections to another interface, but that the data need not travel exclusively over the telephone line interface. *Id.* at col. 12:54, 57. That is, Multi-Tech asserts that the claims only require that the communication system *connects to* a telephone line, not that it utilize the telephone line exclusively end-to-end. Multi-Tech Br. at 62. Multi-Tech argues that its claims cover both telephone calls made over a circuit-switched network such as the PSTN, as well as telephone calls made over a packet-switched network such as the Internet, as long as the system first connects to a standard telephone line. Multi-Tech Reply Br. at 15. Finally, Multi-Tech argues that because "point-to-point" is not a claim term, it does not limit the claims.

The intrinsic evidence as a whole limits Multi-Tech's invention to utilizing a direct point-to-point telephone line connection. Multi-Tech's argument that its explanation to the Patent Office regarding the distinction between the '627 Patent and Lewen was meant solely to describe "the complex system of hardware components existing between the computer and the external telephone network," is not consistent with the language used in Multi-Tech's letters to the Patent Office. Multi-Tech Br. at 63. Multi-Tech's letters identify the element of Lewen's invention that occurs prior to a telephone line connection, namely the token ring LAN. However, Multi-Tech did not narrowly state to the Patent Office that the distinction was simply that its invention did not require packets to travel through multiple intermediate components (a node adapter, a token ring LAN, and a gateway) before connecting to a telephone line, as it now

argues. *Id.* Instead, Multi-Tech repeatedly stated in the prosecution history that its invention is made distinctive by its sending information "through a point-to-point modem connection between sites." Lewis Decl. Ex. 11 at 5; *see also Id.* Ex. 10 at 2-3 ("Applicant's voice packets do not circulate around a LAN but proceed directly from the communications system through the POTS line to a receiving communications system at the other end of the line. Such point-to-point links are not comparable to LANs, as evidenced by Lewen's use of a complex gateway to connect an external network to his LAN. . . ."). This language unambiguously references more than the function of MultiTech's invention limited to the connection of the hardware module directly to a telephone line; it encompasses the entirety of the point-to-point connection *through* a standard telephone line from *end to end*, as well as its transmission of information through the POTS line. A "point-to-point connection between telephone equipment on each end of the line" is not established where the hardware module connects via a telephone line to a packet-switched network and then back to a telephone line for connection to the remote site. Lewis Decl. Ex. 10 at 2. As such, the transmission of information through a packet-switched network is disclaimed.

(1). Prosecution History

Multi-Tech contests the use of statements made during the prosecution history of the '627 Patent to interpret the disputed claim. *Pall Corp. v. PTI Techs. Inc.*, 259 F.3d 1383 (Fed. Cir. 2001), suggests that "statements made during the prosecution history are used to interpret the scope and meaning of the patent claims." *Id.* at 1392. "Even where the

ordinary meaning of the claim is clear, it is well-established that '[t]he prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.'" *Id.* (citation omitted); *see also Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1304 (Fed. Cir. 1997) (in the context of claim construction, stating that "by distinguishing the claimed invention over the prior art, an applicant is indicating what the claims do not cover, he is by implication surrendering such protection"); *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 452-53 (Fed. Cir. 1983) (noting that "the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance" and that "[b]y making this disclaimer or concession, [the patentee] surrendered any interpretation of its claim that would include [the subject matter urged to be outside of the scope of the claims]").

However, *Pall* was vacated by *PTI Techs. Inc. v. Pall Corn.*, 122 S.Ct. 2324 (2002), after the Supreme Court's ruling in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 122 S.Ct. 1831 (2002). In its original analysis of Pall, the Federal Circuit relied on its holding from the case underlying the recent *Festo* Supreme Court case, *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 574 (Fed. Cir. 2000), that "application of the doctrine of equivalents is completely barred for a claim limitation that has been narrowed for reasons related to patentability." *Pall*, 259 F.3d at 1390. The Supreme Court in *Festo* rejected this

principle and ruled that prosecution history estoppel is not a complete bar. *Festo*, 122 S.Ct. at 1840.

> Prosecution history estoppel requires that the claims of a patent be interpreted in light of the proceedings in the PTO during the application process. Estoppel is a 'rule of patent construction' that ensures that claims are interpreted by reference to those 'that have been cancelled or rejected.'

Id. at 1838 (citation omitted). A patentee's decision to submit an amended claim "is taken as a concession that the invention as patented does not reach as far as the original claim." *Id.* Prosecution history estoppel arises from any amendment to a claim that "is made to secure the patent and the amendment narrows the patent's scope." *Id.* The amendment may be made in order to avoid prior art, address a concern such as obviousness, or to satisfy any requirement of the Patent Act. *Id.* at 1839. The Supreme Court held that the reach of prosecution history estoppel "requires an examination of the subject matter surrendered by the narrowing amendment." *Id.* at 1840. A narrowing amendment should not relinquish unforeseeable equivalents, or "foreclose claims of equivalence for aspects of the invention that have only a peripheral relation to the reason the amendment was submitted." *Id.* at 1841. Instead of "complete bar" estoppel, the Court held that "the patentee should bear the burden of showing that the amendment does not surrender the particular equivalent in question" in order to "overcome the presumption that prosecution history estoppel bars a finding of equivalence." *Id.* at 1842. The original decision in *Pall*

relied on the complete bar rule and was later vacated in the wake of *Festo*'s holding.

Festo does not change the fact that "prosecution history is relevant to construing . . . claims." *Id.* "When a patentee . . . narrow[s] his claims, . . . prosecution history estops him from later arguing that the subject matter covered by the original, broader claim was nothing more than an equivalent." *Id.* at 1835. "The inventor who chooses to patent an invention and disclose it to the public. . . bears the risk that others will devote their efforts toward exploiting the limits of the patent's language." *Id.* at 1837. Competitors may rely on the estoppel because "the purpose of applying the estoppel in the first place [is] to hold the inventor to the representations made during the application process and to the inferences that may reasonably be drawn from the amendment." *Id.* at 1840.

Here, the claim language itself was not altered to narrow the claim scope. However, "[p]rosecution history is relevant not only for purposes of prosecution history estoppel but also for construing the meaning and scope of the claims." *Alpex Computer Corn. v. Nintendo Co.*, 102 F.3d 1214, 1220 (Fed. Cir. 1996), *reh'g denied*, Jan. 15, 1997, *cert. denied* 521 U.S. 1104 (1997). In analyzing a patent infringement case involving the well-known Rubik's Cube puzzle, the Federal Circuit held that "[w]hile it is true that the effect of prosecution history arises as, an estoppel when applying infringement analysis under the doctrine of equivalents, the prosecution history can and should, where relevant, be assessed (along with, e.g., claim language and specification) in properly interpreting claim language." *Moleculon Research Corp. v. CBS.* Inc., 793 F.2d 1261, 1270 (Fed. Cir. 1986)

(citations omitted). Put simply, "[a] patentee who narrows a claim as a condition for obtaining a patent disavows his claim to the broader subject matter. . . ." *Festo*, 122 S.Ct. at 1840.

Applied to the instant facts, although Multi-Tech's statements regarding the point-topoint nature of the telephone connection do not relate directly to the fact that the device uses a modem to connect to the telephone line, they nevertheless are properly considered in defining the limits of the claim. This claim element requires the invention to use a direct point-to-point telephone line connection.

(2). Protocols

Microsoft further argues that the communication protocols cited in the specification confirm that the disclosure is limited to communicating over the PSTN. Microsoft Ex. 1 Tab H. The specification states that "the input data from the attached computer is transmitted using the error control protocol like . . . V.42," and the "transmission of the digital data follows the CCITT V.42 standard," which is incorporated by reference. '289, col. 3: 2-4; *id.* at col. 13: 12-18; *see also id.* at col. 35: 43-45. The specification also states that data packets are "transmitted by the HDLC protocol in which data is transmitted in synchronous mode and checked by CRC error checking." *Id.* at col. 35: 35-38.

The declaration of Joseph A. Konstan, a multimedia systems expert learned in the art, is helpful in understanding the context of these specification references. He explains that "HDLC ('high level data link control') protocol is a standard set by the International Standards Organization (ISO)," which

"may be incorporated into several other protocols." Mandernach Decl. Ex. L at 9 (Konstan Decl.). HDLC can be incorporated into the V.42 protocol, as well as the X.25 protocol. *Id.* The V.42 protocol standard operates solely over the public switched telephone network, while the X.25 protocol is a network protocol for use with packet-switched networks. *Id.* That is, "V.42 is a standard for communication between two modems over the PSTN, while X.25 is a standard for packet-based communications between nodes on a network." *Id.* at 10. The specification discloses use of the HDLC protocol with the V.42 protocol, but does not include any references to the X.25 protocol. The HDLC protocol disclosure does not convey to one of skill in the art that the invention is usable with a packet-switched network simply because the HDLG protocol can be used with the X.25 packet-switching protocol. The references in the specification to the use of the HDLC protocol with the V.42 protocol over the public switched telephone network are consistent with the above construction of this claim element.

e. Telephone Voice Interface Means for Receiving Local Voice Signals from a Local User and for Conveying Remote Voice Signals from a Remote User to the Local User

i. Telephone Voice Interface Means

The parties also dispute whether this claim element is in means-plus-function format. As explained above, the reference to "telephone voice interface" identifies a structure sufficient to perform the claimed function of receiving local voice signals and conveying remote voice signals. Therefore,

this claim element is not a means-plus-function element requiring interpretation under § 112, ¶ 6, and is instead construed under the ordinary rules for claim construction. Claim 1 of the '470 Patent and claim 1 of the '532 Patent require a "voice interface means" that is substantially similar, therefore construction of that element in those Patents should comport with the following anaiysis.

Like the telephone line interface means, the telephone voice interface means is described in the claim as an element comprising the communications module. It is separate from the computer. Microsoft argues that this preempts the voice interface means from being a speaker and microphone plugged directly into the personal computer, because such an interface is not disclosed in the patent. However, because § 112, ¶ 6 does not apply to this claim element, the type of interface is not limited only to the corresponding structures disclosed in the specification.

The specification identifies that the telephone voice interface means may include a "telephone handset 301, a telephone headset 302, and a hands-free microphone 303 and speaker 304." '289, col. 8: 19-21. The specification makes clear that these alternatives relate to the preferred embodiment, thus other alternatives are not excluded by the specification language. However, the specification states that any of the listed telephone interfaces "connect to the digital telephone coder-decoder (CODEC) circuit 305," which is an internal component of the communications module. *Id.* col. 8: 21-24; id. FIG. 3. Likewise, on the receiving end, the CODEC enables the handset, microphone and speaker operation, and "trans[mits] to" the telephone interface

directly. *Id.* at col. 9: 34-37, 51-55. Reading the claim in light of the specification, the telephone voice interface means is not meant to he connected directly to the personal computer, which is instead connected to the serial interface circuit 315. *Id.* at col. 8: 65-66.

Multi-Tech argues that the claim also covers a microphone and speaker plugged directly into a personal computer, because the claim language does not state any requirement identifying into where the telephone voice interface means must be plugged. However, the claim itself does list the telephone voice interface means as a component part of the communications module. '289, claim 1.

ii. Local User and Remote User

A local user is the human being at the local end of the telephone line, and a remote user is the human being at the remotc cnd of the telephone line.

iii. Receiving Local Voice Signals

Receiving local voice signals is receiving a voice signal by a microphone, headset or handset.[8] These voice signals are analog signals representing the audio received from the local user. '289, col. 12: 22-26; *id.* at col. 26: 31-34.

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8. The handset is not encompassed by the '627 Patent, because the '627 Patent is limited to a full-duplex speaker phone, which does not require a handset. This requirement is not present in the other patents.

iv. Conveying Remote Voice Signals

Conveying remote voice signals, or playing the remote analog voice signals, also expressed in the '627 Patent, l.a, 2 & 5 preambles, & 7.h, is playing a voice signal by a speaker, headset or handset.[9] These voice signals are analog signals representing audio received from the remote user.

f. Full-Duplex Conversion Means for Converting the Local Voice Signals Into Outgoing Digital Voice Data and for Converting Incoming Digital Voice Data Into the Remote Voice Signals

i. Means-Plus-Function Analysis under § 112, ¶ 6

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6 (2001). Claim construction of a § 112, ¶ 6 limitation, referred to as a means-plus-function limitation, requires (1) identification of the claimed function and (2) identification of the corresponding structure in the specification which performs the recited function. *IMS*, 206 F.3d at 1429-1430; *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1257 (Fed. Cir. 1999). These

9. Again, the handset is not encompassed by the '627 Patent.

identifications are both questions of law, while whether an accused device performs the identical function "or an equivalent thereof" is a question of fact. *IMS*, 206 F.3d at 1430. A means-plus-function claim encompasses all structure in the specification corresponding to that element and equivalent structures. *Micro Chem.*, 194 F.3d at 1258. The scope of the claim is not expanded by § 112, ¶ 6; rather, § 112, ¶ 6 "operates to *cut back* on the types of *means* which could literally satisfy the claim language." *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1580 (Fed. Cir. 1989) (emphasis in original) (holding that § 112, ¶ 6 "restricts the scope of the literal claim language"). However, means-plus-function claims are not limited to a particular means set forth in the specification, because they are construed to cover equivalents as well. *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1574 (Fed. Cir. 1985).

The parties agree that three of the claim elements within claim 1 of the '289 Patent are means-plus-function elements to be interpreted under § 112, ¶ 6. The first of these elements occurs here: full-duplex conversion means. The other two, compression means and main control means, are discussed below.

ii. Full-Duplex Conversion Means

(1). The Function

The function of this claim element is to perform the conversion of voice signals from analog-to-digital (A/D) and digital-to-analog (D/A). '289, col. 26: 30-34 ("In operation, the speech or analog voice signal . . . is digitized by the digital

telephone CODEC circuit 305."); *id.* at col. 2: 3; *id.* at col. 23: 27-29; *id.* at col. 6: 56-58.

This conversion process must comply with the construction of full-duplex given above, such that both A/D and D/A conversion occur simultaneously. 289, col. 11: 29-12: 2 ("[F]ull duplex data transmission may be accomplished simultaneously with the voice communicati an between both sites."). "The uncompressed digital voice information is passed to digital telephone CODEC circuit 305 where it is reconverted to an analog signal and retransmitted through the telephone line interface circuits. In this fashion, full-duplex voice and data transmission and reception are accomplished through the hardware components of FIG. 3 . . . ." *Id.* col. 13: 40-48.

(2). The Structure

The corresponding structure disclosed in the Patent specification is "CODEC circuit 305." '289, col. 23: 28-30; *id.* FIG. 3. A "codec," short for coder/decoder, is hardware that can convert signals between analog and digital formats. Newton's Telecom Dictionary 203 (1992). "[T]he actual D/A and A/D functions for the telephone interface occur in digital telephone CODEC chip U12 (corresponding to digital telephone CODEC circuit 305 of FIG. 3)." *Id.* at col. 17: 39-42; *see also id.* col. 9: 51-55. "The CODEC for circuit 305 is a commanding μ-law CODEC." *Id.* at col. 26: 33-34; *see also id.* at col. 26: 51-54.

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iii. Local and Remote Voice Signals

The analog signals representing the audio received from the local user or remote user are the local and remote voice signals, respectively.

iv. Outgoing and Incoming Digital Voice Data

The digital signals representing the audio received from the local user or remote user are the outgoing and incoming digital voice signals, respectively.

The proper interpretation of this claim is: the simultaneous bi-directional conversion of outgoing and incoming voice signals (or data) from analog-to-digital (A/D) and digital-to-analog (D/A) by the CODEC circuit 305 or an equivalent thereof.

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g. Compression Means for Compressing the Outgoing Digital Voice Data Into Compressed Outgoing Digital Voice Data Packets and for Decompressing Compressed Incoming Digital Voice Data Packets Into the Incoming Digital Voice Data, Each of the Compressed Outgoing Digital Voice Data Packets Having Headers and Each of the Compressed Incoming Digital Voice Data Packets Having Headers

i. Compression Means

This claim element is also stated in means-plus-function language and will be interpreted under 35 U.S.C. § 112, ¶ 6.

(1). The Function

The function of this claim element is compressing the outgoing digital voice data, packetizing the compressed data into compressed outgoing digital voice data packets, depacketizing incoming packets into incoming digital voice data, and decompressing the incoming digital voice data. '289, claim 1, element 1.a(5).

(2). The Structure

The corresponding structure disclosed in the Patent specifications is the "voice control circuit 306," which is "a combined digital signal processor [DSP] and a linear CODEC in a single chip." '289, col. 23: 30-36; *id.* at col. 26: 50-51. The DSP of the voice control circuit 306 is programmed to perform the voice compression algorithm; it

compresses the speech and places the compressed digital representations of the speech into special packets. *Id.* at col. 23: 30-38. Specifically, the "voice control DSP/CODEC of circuit 306 correspond[s] to the single integrated circuit U8 shown in FIGS. 9A and 9B as a WE DSPI6C Digital Signal Processor/CODEC from AT&T Microelectronics." *Id.* at col. 26: 46-51. The received compressed voice data packets are also uncompressed and reconstructed by the DSP/CODEC circuit 306. *Id.* at col. 27: 19-26. "Thus the voice-control DSP/CODEC circuit 306 is processing the voice data in both directions in a full-duplex fashion." *Id.* at col. 27: 30-32.

Like the remaining component parts of the communications module, the compression means is separate from the personal computer. A "structure disclosed in the specification is [a] 'corresponding' structure only if the specification or prosecution history clearly links or *associatcs that structures* to the function recited in the claim. This duty to link or associate structure to function is the *quid pro quo* for the convenience of employing § 112, ¶ 6." *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997) (emphasis in original). The DSP/CODEC circuit 306 is the only structure identified in the specification for performing the claimed function of this claim element. All structural equivalents are covered by this claim as well, however, determining qualifying equivalent structures under § 112, ¶ 6 is a question of fact.

"In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose

computer programmed to perform the disclosed algorithm." *WMS Gaming, Inc. v. Int'l Gaming Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). Therefore, the corresponding structure DSP includes the programmed algorithm. The specification identifies the algorithm as "a unique Vector Quantization (VQ) speech compression algorithm." '289, col. 24: 30-32.

Multi-Tech argues that the VQ algorithm cannot be a part of claim 1 of the '289 Patent because an algorithm is specifically included in the language of two dependent claims, giving claim 1 a broader scope under the doctrine of claim differentiation.

(a) Claim Differentiation

Under the doctrine of claim differentiation, it is presumed that different words used in different claims result in a difference in meaning and scope for each of the claims. *Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc*, 206 F.3d 1440, 1446 (Fed. Cir. 2000). Claim differentiation applies where a court interprets the scope of two different claims to be identical by importing the limitations of the dependent claim into the independent claim. *Globetrotter Software, Inc. v. Elan Computer Group. Inc.*, 236 F.3d 1363, 1369 (Fed. Cir. 2001). This doctrine cannot broaden a claim beyond what is contained in the written description, but it prevents the narrowing of broad claims by reading into them the limitations of narrower claims.[10] *Clearstream*, 206 F.3d

10. "It is settled law . . . that independent claims containing means-plus-function limitations do not have the same literal scope as dependent claims reciting specifically the structure that performs

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at 1446; D.M.I., 755 F.2d at 1574 ("Where some claims are broad and others are narrow, the narrow claim limitations cannot be read into the broad whether to avoid invalidity or to escape infringement."). "Claim differentiation is a [judicially developed] guide, not a rigid rule."[11] *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991); *see also Karlin Technology. Inc, v. Surgical Dynamics, Inc,* 177 F.3d 968, 972 (Fed. Cir. 1999). A means-plus-function limitation "is not made open-ended by the presence of another claim specifically claiming the disclosed structure which underlies the means clause or an equivalent of that structure." *Laitram*, 939 F.2d at 1538.

Multi-Tech argues that non-asserted dependent claim 7 of the '470 and '532 Patents recites a specific compression algorithm, and that therefore the independent claims reciting merely the "compressing" limitation should not be construed to include a specific algorithm. Multi-Tech Br. at 33. However, corresponding limitations between claims may be

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(Cont'd)
the stated function." *Medtronic, Inc. v. Advanced Cardiovascular Sue*, 248 F.3d 1303, 1313 (Fed. Cir. 2001). What matters is the conviction one skilled in the art would have as to what is disclosed after reading the specification. *Id.* at 1312.

11. *But see D.M.I.*, 755 F.2d at 1574 (stating the doctrine of claim differentiation is a "well established" and "fixed" rule that "enjoys an immutable and universally applicable status comparatively rare among rules of law," and that without it "the entire statutory and regulatory structure governing the drafting, submission, examination, allowance, and enforceability of claims would crumble").

differently worded while still subject to the same interpretation. *Kraft Foods, Inc. v. Int'l Trading Co.*, 203 F.3d 1362, 1368 (Fed. Cir. 2000). "[T]he stringencies of a means-plus-function limitation are not to be avoided by the mere addition of a dependent claim that recites the corresponding structure disclosed in the specification." *Wenger Mfg., Inc. v. Coated Mach. Sys., Inc.*, 239 F.3d 1225, 1234 (Fed. Cir. 2001). Because these claim elements are interpreted in accordance with the requirements of § 112, ¶ 6, which mandate that a disclosed structure programmed to execute a particular algorithm is comprised of the identified algorithm as part of the structure, the DSP/CODEC 306 is construed to use the VQ algorithm. *WMS*, 184 F.3d at 1349.

Multi-Tech argues that the specification also discloses that "those skilled in the art will readily recognize that the other ID/LI character codes could be defined to allow for . . . altenate voice compression algorithm packets such as Codebook Excited Linear Predictive Coding (CELP) algorithm, GSM, RPE, VSELP, etc." '289, col. 19: 49-56. However, "the disclosure identifies only one compression algorithm that meets the compression rate guarantees needed to make the device operable." Mandernach Decl. Ex. L (Konstan Decl. at 20). Joseph A. Konstan, skilled in the art of multimedia systems, opined that the patents-in-suit teach no other algorithms than the VQ algorithm that would be suitable for the disclosed data compression task. *Id.* ("As one of skill in the art, I am not aware of any other data compression algorithms known in January 1993 that would have met the compression rate criteria while still being computable on the specified DSP.")

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ii. Compressing and Decompressing

Compressing is reducing the size of digital voice data, so that it can be stored in less space or transmitted with less bandwidth. Decompressing is expanding compressed the digital voice data to return it to a usable form.

iii. Outgoing/Incoming Digital Voice Data

Digital signals representing the audio received from the local user are "outgoing," and digital signals representing the audio received from the remote user are "incoming."

iv. Compressed Outgoing/Incoming Digital Voice Data Packets Having Headers

Microsoft argues Multi-Tech is acting as its own lexicographer in its application of meaning to this claim element. Multi-Tech counters that the words used each have ordinary meanings understood to persons of ordinary skill in the art. "Proper claim construction, however, demands interpretation of the entire claim in context, not a single element in isolation." *Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999). The claim language uses the term "headers" in different contexts, namely with reference to incoming and outgoing digital voice data packets, and incoming and outgoing computer digital data packets. '289, claim 1, elements 1.a(5) & 1.a(7). The term "headers" as it is used in relation to each type of packet must be interpreted in light of the whole claim as read in the context of the specification.

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A packet is a unit of information transmitted as a whole from one device to another. Lewis Decl. Ex. 6 (Microsoft Press Computer Dictionary 253 (1991)). A header generally is a unit of information that precedes and identifies the information packet. *See* Multi-Tech Br. App. Vol. I Tab 19 (Microsoft Computer Dictionary Fourth Edition 215 (1999)). While the parties agree that the term packet alone can include reference to both data and a header, the parties dispute the use of the term "header" in this claim element. Multi-Tech argues the claims only require that both the packets and the headers be present, or at most that the headers distinguish voice packets from data packets, while Microsoft asserts that the headers associated with the digital voice data must identify the contents of the packet as containing either voice data or silence data. Multi-Tech Br. at 37; Lewis Decl. Ex. 12 Tab A at 21; Lewis Decl. Ex. 13 Tab A at 19-20. Multi-Tech argues that Microsoft's proposed construction of "header" imports limitations not present in the claim language and attempts to improperly limit the claims to a preferred embodiment. *See Karlin*, 177 F.3d at 971-72 (holding trial court erred in reading extraneous limitations into a claim term where doing so departed from the ordinary meaning of the terms); *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) ("Although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.") (citation omitted).

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(1). Limitations Found in the Specification

Extraneous limitations or embodiments appearing in the specification will not be read into the claims. *Enercon v. International Trade Comm'n*, 151 F.3d 1376, 1384 (Fed. Cir. 1998). "Extraneous" means a limitation read into a claim from the specification "wholly apart from" any need to interpret what the patentee meant by particular words in the claim. *E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). However, if a specification "requires" a limitation, that limitation should be read from the specification into the claims. *Id.*

(2). Headers

Where a patentee is his own lexicographer and terms are used in a manner other than their ordinary meaning, "the court must determine how a person of experience in the field of this invention would, upon reading the patent documents, understand the words used to define the invention." *Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1299 (Fed. Cir. 1999). Microsoft argues that the complete phrase "outgoing digital voice data packets having headers" is a term coined by Multi-Tech to have the meaning revealed by the specification.

The claim language explains that digital voice data packets with headers are created by the compression means, and sent by the compression means to the main control means. '289, claim 1, element 1.a(5)-1.a(6). The structure corresponding to the compression means has been identified as the "voice control circuit 306," which is "a combined

digital signal processor [DSP] and a linear CODEC in a single chip." '289, col. 23: 30-36; *id.* at col. 26: 50-51. The maim control means "receiv[es] the compressed outgoing digital voice data packets from the compression means" through "dual port RAM circuit 308." '289, claim 1, element 1.a(6); col. 8: 59-61. This main control means is the "main controller circuit 313 of FIG. 3." '289, col. 34: 3-5. The specification states that the DSP 306 sends data to the main controller circuit 313 in the form of blocks of "V-data" (voice data). *Id.* at col. 34: 24-25. "Each V-data block has one sign byte as a header." *Id.* at col. 34: 26-27. This header is transferred from the voice control ESP to the main control means to identify "the contents of the voice packet." *Id.* at col. 34: 65-66. The specification details two types of headers, "00 hex" which identifies that "the following V-data contains silent sound," and "01 hex" which identifies that "the following V-data contains silent sound information." *Id.* at col. 34: 66-35: 2.

For the preferred embodiment to function as specified, the headers attached to the "digital voice data packets" must identify whether the V-data contains silent sound or speech information. If the headers were interpreted to identify only whether voice or computer data were included in the "digital voice data packets" the headers were attached to, the specification would not make sense, and the preferred embodiment of the invention would not operate as disclosed. This limitation is not extraneous, but rather is required by the language of the specification, and must be read into the language of this claim. *Du Pont*, 849 F.2d at 1433.

Thus, the proper interpretation of this claim element is: voice control circuit 306, using the VQ algorithm, which compresses outgoing digital voice data, packetizes the compressed data into outgoing digital voice data packets, depacketizes incoming packets into incoming digital voice data and decompresses the incoming digital voice data, where the digital voice data packets sent and received by voice control circuit 306 have headers identifying whether the attached packets contain silent sound or speech information.

h. Main Control Means for Receiving the Compressed Outgoing Digital Voice Data Packets from the Compression Means, for Receiving Outgoing Computer Digital Data Packets from the Personal Computer Through the Communications Interface Means, for Multiplexing the Compressed Outgoing Digital Voice Data Packets and the Outgoing Computer Digital Data Packets to Produce Multiplexed Outgoing Digital Data and for Sending the Multiplexed Outgoing Digital Data to the Telephone Line Interface Means for Digital Transmission Over the Telephone Line

i. Main Control Means

The means-plus-function expression requires interpretation under 35 U.S.C. § 112, ¶ 6.

(1). The Function

The function of this claim element is to receive compressed outgoing digital voice data packets and outgoing

computer digital data packets from the compression means and personal computer respectively, for multiplexing to pruduce multiplcxcd outgoing digital data, and to send the multiplexed outgoing digital data to the telephone line interface means for digital transmission over the telephone line.

(2). The Structure

The corresponding structure disclosed in the Patent specifications is the main controller circuit 313. '289, col. 8: 55. The disclosed preferred embodiment of the main controller circuit includes a microprocessor, specifically a Z80180 eight-bit microprocessor chip. '289, col. 9: 1-5; col. 16: 9-10. The main controller circuit communicates with the voice control DSP through dual port RAM circuit 308, however the dual port RAM circuit is distinct from the main controller circuit, as shown by Figure 3. Id. at col. 8: 59-61; *see id.* at col. 12: 30-32 ("The digitized and *compressed* voice information is *passed through* dual port RAM circuit 308 to the main controller circuit 313.") (emphasis added). "Structural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations." *Asyst Techs., Inc. v. Empak, Inc.*, 268 F.3d 1364, 1370 (Fed. Cir. 2001). Because the dual port RAM circuit does not actually perform the stated functions of the main controller circuit, it is not a part of the corresponding structure of the main controller circuit. As with each of the elements "comprising" the hardware module, the main control means is separate from the personal computer. '289, claim 1, element 1.a; *id.* at col. 5: 59-62 ("[T]he hardware components 20 include the data communication equipment.").

Appendix B

ii. Outgoing Computer Digital Data Packets

Outgoing computer digital data packets are packets of non-voice data information from the local user's computer, "for such things as text, file transfers, binary data and any other type of information presently being sent through modems." '289, col. 20: 29-33. The headers attached to the computer data packets identify the packet type and packet length. *Id.* at col. 20: 36-37.

iii. Multiplexing

Multiplexing requires interpretation in light of the specification, as it is agreed Multi-Tech acted as its own lexicographer in using this term.

The specification teaches that multiplexing is relevant to the "show and tell" function of the system, which allows a "data over voice (DOV)" communications session. '289, col. 7: 32-34. "The show and tell component . . . enables the operator to simultaneously transmit voice and data communications to a remote site . . . over the telephone line." *Id.* at col. 2: 25-30. This DOV function, accomplished in the hardware components of the system,[12] "multiplexes" dgital

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12. "[T]he internal components of the typically equipped personal computer [in 1992] did not have the hardware necessary to support the inventions." Multi-Tech Br. at 5. The Court "interprets the claim at issue to cover no more than what the specification supported at the time of filing." *Schering Corp. v. Amgen,Inc.*, 222 F.3d 1347, 1353 (Fed. Cir. 2000). A term used in a patent claim or specification "could not enlarge the scope of the patent to embrace technology arising after its filing." *Id.*

voice data packets and computer digital data packets in "dynamically changing allocations" in the same transmission. *Id.* at col. 7: 37-42; *id.* at col. 9: 20-23.

The allocation of voice and data at a given time is determined by the amount of voice information required to be transferred. "Quiet voice intervals allocate greater space to the digital data transmission." *Id.* at col. 7: 42-45. "Dynamic" allocations are dependent on the quiet times during voice transmissions. Where a silence packet occurs (when there is no speech information being transmitted), a higher volume of digital data information is transmitted by the main controller circuit, in lieu of digitized voice information. *Id.* at col. 12: 47-55. "A silence detection function is used to detect quiet intervals in the speech signal and substitute conventional data packets in lieu of voice data packets to effectively time multiplex the voice and data transmission," therefore the "allocation of time for conventional data transmission is constantly changing depending on how much silence is [present]." *Id.* at col. 24: 1-7; *see also id.* at col. 28: 37-44. Thus, "silence detection" assists "in the time allocation between multiplexed data and voice in the [DOV] mode." *Id.* at col. 32: 66-68.

This multiplexing of voice data (V-data) and conventional data (C-data), or "V-data/C-data multiplexing," is accomplished in the main controller circuit 313. *Id.* 35: 3-5. The main controller circuit detects silence packets and voice packets sent from the DSP 306, and "only provide[s] non-silence V-data to the multiplex control level, while discarding silence V-data packets." *Id.* at col. 35: 20-31. The non-silence V-data packets are multiplexed with C-data

packets (received through the RS232 serial interface 315 from the personal computer) for transmission through the same channel. *Id.* at col. 35: 32-35; *id.* at col. 12: 38-41.

During the multiplexing process, "[t]he V-data block has higher priority to be transmitted than C-data to ensure the integrity of the real-time voice transmission." *Id.* 35: 56-58. Thus, C-data packet transmission is terminated whenever more than one V-data packet is available to be sent. *Id.* 36: 4-11.

Multi-Tech stresses the scope of the definition of multiplexing must be broad under the doctrine of claim differentiation, in light of particular iterations of multiplexing identified in several non-asserted dependent claims: '470, claim 8, '649, claims 2, 3 and 4, and '532, claims 8, 12, 13 and 14. However, "that [dependent] claims are presumed to differ in scope does not mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ." *Kraft Foods*, 203 F.3d at 1368. The dependent claims identified by Multi-Tech include additional limitations, therefore claim differentiation is inapplicable.

Multiplexing is defined by its use and function in the specification to be the combining of voice data (V-data) and conventional data (C-data) for transmission through the same channel by dynamically changing the time allocations for transmission of each type of data such that V-data has higher priority over C-data, and C-data is substituted for silence packets which are detected and discarded.

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iv. Multiplexed Outgoing Digital Data

Multiplexed outgoing digital data is a stream of information outgoing from the local user's communication module containing both compressed outgoing digital voice data packets and outgoing computer digital data packets, combined in the manner described as "multiplexing" in the above section. This claim element appears as "multiplexed outgoing data" in '470, claim 1, element 1.f and '532, claim 1, element 1.f.

The proper interpretation of this claim element is: main controller circuit 313, which receives compressed outgoing digital voice data packets and outgoing computer digital data packets, from the compression means and personal computer respectively, for the combining of voice data (V-data) and conventional data (C-data) for transmission through the same channel by dynamically changing the time allocations for transmission of each type of data such that V-data has higher priority over C-data, and C-data is substituted for silence packets which are detected and discarded to produce multiplexed outgoing digital data, and which sends the multiplexed outgoing digital data to the telephone line interface means for digital transmission over the telephone line.

Appendix B

i. The Main Control Means Further For Receiving Multiplexed Incoming Digital Data from the Telephone Line Interface Means from the Telephone Line, the Multiplexed Incoming Digital Data Containing Incoming Computer Digital Data Packets, for Demultiplexing the Incoming Computer Digital Data Packets and the Compressed Incoming Digital Voice Packets, and for Sending the Incoming Computer Digital Data Packets to the Personal Computer Through the Communications Interface Means and for Sending the Compressed Incoming Digital Voice Data Packets to the Compression Means, each of the Incoming Computer Digital Packets Having Headers.

i. Main Control Means

Again, this expression requires interpretation under 35 U.S.C. § 112, ¶ 6.

(1). The Function

The function of this claim element is to receive multiplexed incoming digital data containing incoming computer digital data packets multiplexed with compressed incoming digital voice data packets, and to demultiplex them for sending the incoming computer digital data packets to the personal computer and the compressed incoming digital voice data packets to the compression means, where each of the incoming computer digital data packets have headers.

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(2). The Structure

The corresponding structure disclosed in the Patent specifications is the main controller circuit 313. '289, col. 8: 55. The disclosed preferred embodiment of the main controller circuit includes a microprocessor, specifically a Z80180 eight-bit microprocessor chip. '289, col. 9: 1-5; col. 16: 9-10.

ii. Multiplexed Incoming Digital Data

Multiplexed incoming digital data is a stream of packets from the remote user's communication module containing both "compressed incoming digital voice data packets" and "incoming computer digital data packets."

iii. Demultiplexing

This process is the reverse of multiplexing, whereby a combined stream of packets containing compressed incoming digital voice data packets and incoming computer digital data packets is separated into separate streams, one V-data and one C-data, where the compressed incoming digital voice data packets are sent to the compression means, and the incoming computer digital data packets are sent to the personal computer through the communications interface means.

Appendix B

iv. Compressed Incoming Digital Voice Data Packets

Compressed incoming digital voice data packets are the remote user's audio information in digital form and compressed to reduce the size of digital voice data.

v. Incoming Computer Digital Data Packets Having Headers

Incoming computer digital data packets are non-voice data packets from the remote user's computer, "for such things as text, file transfers, binary data and any other type of information presently being sent through modems." '289, col. 20: 29-33. The headers attached to the computer data packets identify the packet type and packet length. *Id.* at col. 20: 36-37.

The proper interpretation of this claim element is: main controller circuit 313, which receives through the telephone line and telephone line interface means multiplexed incoming digital *voice* data packets (V-data) and incoming computer digital data packets (C-data) transmitted through the same channel, separates the V-data and C-data into two separate streams, and sends the resulting compressed incoming digital voice packets to the compression means, and the incoming computer digital data packets, with headers identifying the packet type and packet length, to the personal computer through the communications interface means.

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j. The Personal Computer Operable for executing Software to Communicate with the Communications Module Through the Communications Interface and Operable for Initiating a Telephone Call to a Remote Site in Response to the Commands by the Local User and for Causing the Main Control Means of the Communications Module to Perform Multiplexing and Demultiplexing

This claim element is a personal computer equipped with software for controlling the functions of the communications mudule, including communicating with the communications module through the communications interface, and operable for initiating a telephone call to a remote site in response to the commands by the local user and for causing the main control means of the communications module to perform multiplexing and demultiplexing. This claim element is to be interpreted consistently with the defnitions of all the encompassed terms given above.

k. The Personal Computer Further Operable for Receiving and Storing the Incoming Computer Digital Data Packets Received from the Communications Module Over the Communications Interface and for Transmitting the Outgoing Computer Digital Data Packets to the Communications Module Over the Communications Interface

This claim element is to be interpreted consistently with the definitions of all the encompassed terms given above.

Appendix B

2. '470 Patent, Claim 1 & '532 Patent, Claim 1

These apparatus claims are to be interpreted consistently with the constructions of all the claim elements discussed above in the context of the '289 Patent, claim 1. Additional claim elements requiring construction are addressed below.

a. A Communication Module for Use with a Personal Computer, Comprising:

The parties agree this preamble is not a claim limitation.

b. A Voice Over Video Communications System for Use with a Personal Computer, Comprising:

Claim 1 of the '532 Patent discloses a "voice over video communications system" for use with a personal computer, therefore it describes a narrower invention than the '289 Patent, claim 1.

c. Digital Signal Processor Means

This claim element appears in '470, claim 1, elements 1.e & 1.g, and '532, claim 1, elements 1.e & 1.g in place of the element "compression means" used in the '289 Patent, claim 1. Multi-Tech argues that the digital signal processor means has the same meaning as compression means, while Microsoft argues for a narrower definition. Multi-Tech Br. at 54. The parties agree that this element is not in means-plus-function format and is interpreted under the ordinary rules of claim construction.

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The digital signal processor means is a component of the communication module. "The general rule is that terms in the claim are to be given their ordinary and accustomed meaning" unless there is "a different meaning clearly and deliberately set forth in the intrinsic materials" or "the ordinary and accustomed meaning of a disputed term would deprive the claim of clarity." *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1362-63 (Fed. Cir. 1999). A digital signal processor, or DSP, is an "integrated circuit designed for high-speed data manipulations, used in audio, communications, image manipulation, and other data-acquisition and data-control applications." Lewis Decl. Ex. 6 (Microsoft Press Computer Dictionary 107 (1991)). The intrinsic materials set forth no alternative meaning for this claim element, nor does the ordinary meaning of DSP deprive the claim of clarity.

d. Outgoing/Incoming Video Data Packets

This claim element appears in '532, claim 1, elements 1.f & 1.g. Video data packets are non-voice data from either the local user's (outgoing) or remote user's (incoming) computer.

3. '627 Patent Claims 1, 2 & 5

These apparatus claims are to be interpreted consistently with the definitions of all the relevant claim elements construed above in the context of the above claims. Additional claim elements requ ring construction are addressed below.

Appendix B

a. A Communication System, Comprising:

Claim 1 of the '627 Patent references a "communication system," comprised of four components, construed below.

b. A Hands-Free Speaker Phone Operable For Receiving Local Analog Voice Signals With A Microphone And For Playing Remote Analog Voice Signals Through A Speaker

i. Hands-Free Speaker Phone

This element is a hardware arrangement integrated into the patented system which is a "sophisticated telephone apparatus with its attached handset, headset and a built-in hands-free telephone operation using the integrated microphone and speaker system." '289, col. 2: 58-61. This construction is consistent with the common meaning of "speakerphone," which is "a telephone which has a speaker and microphone for hands-free, two-way conversation." Lewis Decl. Ex. 27 (Newton's Telecom Dictionary 832 (1992)). This limitation to a "speaker phone" appears only in the '627 Patent, therefore the construction here does not apply to the other claims at issue.

ii. Receiving/Playing Local/Remote Analog Voice Signals

Local analog voice signals are audio received from the local user, while remote analog voice signals are audio signals received from the remote user.

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c. Codee Means Connected To The Hands-free Speaker Phone For Digitizing The Local Analog Voice Signals To Produce Local Digital Voice Signals And For Decoding Remote Digital Voice Signals To Produce The Remote Analog Voice Signals

i. Codec Means

The parties agree that this element is not a means-plus-function claim. Codec here means "coder/decoder" (as opposed to compressor/decompressor). The codec converts analog voice signals into digitized signals, and vice-versa. '289, col. 26: 30-33. This is accomplished by the digital telephone CODEC circuit 305. Id. The '627 Patent does not designate the codec means as a component of a communication module separate from a computer (as was the full-duplex conversion means Clement in the '289 Patent). Therefore, this element is not required to be separate from the computer for the same reason that the full-duplex conversion means comprises the communication module. However, the claim language states that the codec means must be "connected to" the speaker phone, which is a hardware element.

d. Means For Placing The Local Digital Voice Signals Into Outgoing Packets Having Headers And For Removing The Remote Digital Voice Signals From Incoming Packets Having Headers

i. Means For Placing

The parties agree that this element is a means-plus-function claim construed under § 112, ¶ 6.

(1) The Function

The function of this claim element is to place local digital voice signals into outgoing packets having headers, and to remove the remote digital voice signals from incoming packets having headers.

(2) The Structure

The parties agree the corresponding structure disclosed in the Patent specification is a digital signal processor or microprocessor. Microsoft Br. at 52; Multi-Tech Reply Br. at 23. The Patent identifies this as the "digital signal processor (DSP) of the voice control circuit 306," which is "programmed to do the voice compression algorithm." '289, col. 23: 31-33. Under § 112, ¶ 6 this structure is construed to cover equivalents. The claim language of '627, claim 1, does not contain language requiring that the "means for placing" be separate from the personal computer.

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The DSP of the voice control circuit 306 is programmed to do the voice compression algorithm; it compresses the speech and places the compressed digital representations of the speech into special packets. *Id.* at col. 23: 30-38. "In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." *WMS Gamin. Inc. v. Int'l Gaming Tec*h., 184 F.3d 1339, 1349 (Fed. Cir. 1999). Therefore, the corresponding structure DSP includes the programmed algorithm. The specification identifies the algorithm as "a unique Vector Quantization (VQ) speech compression algorithm." '289, col. 24: 30-32.

As discussed above, a packet is a unit of information transmitted as a whole from one device to another, and a header is an information structure that precedes and identifies the information that follows, such as a packet. The headers as used by voice control circuit 306 identify V-data containing silent sound or speech information. *Id.* at col. 34: 68-35:2.

The proper interpretation of this claim is: the digital signal processor of voice control circuit 306, using the VQ algorithm, which places local digital voice signals into outgoing packets having headers identifying V-data as containing silent sound or speech information., and removes the remote digital voice signals from incoming packets having headers.

e. A Modem Connected To A Telephone Line For Receiving The Incoming Packets From A Remote Site And For Sending The Outgoing Packets To The Remote Site In Full Duplex Communication Mode

This element is met by a modem connected to a telephone line. A telephone line means a standard telephone line. A modem is a communications device that enables a computer to transmit information over a standard telephone line. Multi-Tech Br. App. 1, Ex. 19 (Microsoft Computer Dictionary 4th Ed. 294 (1999)). The modem receives incoming packets and sends outgoing packets over the telephone line with simultaneous bi-directional transmission.

f. '627 Patent Dependent Claims 2 & 5

'627, claim 2, describes the communication system of '627, claim 1, with a "deskset microphone" and a "deskset speaker." These elements denote a microphone and speaker which are intended to sit on a desk. '627, claim 5, describes the communication system of '627, claim 1, with a "headset microphone" and a "headset speaker." These elements denote a microphone and speaker which are intended to be worn on the user's head.

C. Disputed Method Claims

The remaining method claims are to be interpreted consistently with the definitions of all the claim elements construed above in the context of the above claims. Additional disputed claim elements not previously addressed requiring construction are addressed below.

Appendix B

1. '627 Patent, Claim 7

a. A Method Of Operating A Full-Duplex Speaker Phone, Comprising the Steps of:

i. Full-Duplex Speaker Phone

This claim element appears in the preambles of independent method claims 7 & 13 of the '627 Patent. Multi-Tech argues these preambles are claim limitations that limit claims 7 & 13 of the '627 Patent to full-duplex speaker phones. "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes*, 182 F.3d at 1305 (citation omitted). If such is the case, "there is no meaningful distinction to be drawn between the claim preamble and the rest of the claim." *Id.* Here, the reference to a method of operating a speaker phone, comprising the specified steps, does not merely describe the purpose or intended use of the invention, but rather offers a definition of the claimed inventions limitations. *See id.* Therefore, the preamble language functions to limit claims 7 & 13 of the '627 Patent to "full-duplex [hands-free] speaker phone" operation.

Full-duplex here modifies the type of speaker phone referenced. Therefore, a full-duplex speaker phone is a telephone with a speaker that allows two people to talk at the same time, as opposed to only one person at a time, such as an intercom, ham radio, CB radio or walkie-talkie.

"The hands-free telephone works in full duplex mode through the use of voice echo cancellation performed by the voice control DSP," using an "integrated microphone and speaker system." '289, col. 2: 58-63.

b. Receiving Local Analog Voice Signals At A Local Site

This step comprises receiving analog signals representing the audio received from the local user who is "talking either through the handset, the headset or the microphone/speaker telephone interface." *Id.* at col. 23: 25-27; *id.* at col. 32: 36-38 ("the speech or analog voice signal is received through the telephone interface 301, 302 or 303"). The "handset" is not covered by the '627 Patent, however. Multi-Tech Br. at 27.

c. Digitizing The Local Analog Voice Signals To Produce Local Digital Voice Signals

Digitizing is converting analog voice signals into digital signals. This is the same as "converting the local voice signals into outgoing digital voice data." '627, claim 13, element 13.c; '470, claim 1, element 1.c; '532, claim 11, element 11.c. The "analog voice signal is . . . digitized by the digital telephone CODEC circuit 305 in an analog to digital conversion." '289, col. 32: 36-39.

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d. Placing The Local Digital Voice Signals Into Outgoing Packets Having Headers

This step is segmenting the local digital voice signals into outgoing packets which have headers identifying the packet as containing silent sound or speech information. '289, col. 34: 68-35: 2.

e. Sending The Outgoing Packets To A Remote Site Over A Telephone Line Using A Modem

As discussed above, this step requires using a direct point-to-point telephone line connection.

f. Receiving Incoming Packets Through The Modem From A Remote Site

This step requires use of a modem to receive the incoming packets from the remote user's site.

g. Removing Remote Digital Voice Signals From The Incoming Packets

This step depacketizes incoming packets into remote digital voice signals representing the audio received from the remote user.

h. Decoding The Remote Digital Voice Signals To Produce Remote Analog Voice Signals

This step converts the voice signals received from the remote site from digital formal to analog format. '289, col. 9: 52-53.

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i. Playing The Remote Analog Voice Signals At The Local Site

This step is met when a speaker, handset (except for the '627 Patent) or headset plays a voice signal. '289, col. 3: 13-15.

2. '627 Patent, Claim 13

This claim is to be interpreted consistently with the definitions of all the claim elements construed above in the context of the above claims. Additional disputed claim elements not previously addressed requiring construction are addressed below.

a. A Method Of Performing Full-Duplex Hands-Free Speaker Phone Operation, comprising the steps of:

The meaning of "Full-Duplex Hands-Free Speaker Phone" here is the same as for "Full-Duplex Speaker Phone" in '627, claim 7, and for the same reasons it also functions as a claim limitation.

b. Compressing The Outgoing Digital Voice Data Into Compressed Outgoing Digital Voice Data

Compressing is using a compression algorithm to reduce the size of digital voice data into a stream of compressed data called compressed outgoing digital voice data. Nothing in the language of this claim or its form requires the use of a

particular compression algorithm, unlike the means-plus-function claim element "compression means" in '289, claim 1. "The hardware components . . . include circuitry to . . . compress [digital voice] data for transfer." '289, col. 2: 46-49.

c. Decompressing Compressed Incoming Digital Voice Data Into The Incoming Digital Voice Data

Decompressing is using an algorithm to restore compressed digital voice data to its original form of "digital voice data." '289, col. 27: 36-39.

d. Packetizing The Compressed Outgoing Digital Voice Data Into Compressed Outgoing Digital Voice Data Packets

Packetizing is segmenting the compressed outgoing digital voice data into compressed outgoing digital voice data packets. Depacketizing is removing the compressed incoming digital voice data from the compressed incoming digital voice data packets and converting them back into a stream of data.

e. Placing Headers On Each Of The Compressed Outgoing Digital Voice Packets

For the reasons discussed above, the headers attached to digital voice packets, or V-data, must identify the packet as containing silent sound or speech information. '289, col. 34: 68-35: 2.

f. Transmitting The Compressed Outgoing Digital Voice Packets On A Communication Line Using A Modem

For the reasons discussed above, "transmitting on a communication line using a modem" requires use of a standard telephone line from end-to-end.

3. '649 Patent, Claim 1

This claim is to be interpreted consistently with the definitions of all the claim elements construed above. Additional disputed claim elements not previously addressed reqiuring construction are addressed below.

a. A Method For Communication Of Voice And Data Information, Comprising The Steps Of:

The parties agree this preamble is not a claim limitation.

b. Placing Headers On Each Of The Compressed Outgoing Digital Voice Packets

For the reasons discussed above, the headers attached to digital voice packets, or V-data, must identify the packet as containing silent sound or speech information. '289, col. 34: 68-35: 2.

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c. Placing Headers On Each Of The Computer Digital Data Packets

For the reasons discussed above, the headers attached to computer digital data packets identify the packet type and packet length. *Id.* at col. 20: 36-37.

d. Multiplexing The Compressed Outgoing Digital Voice Data Packets With Outgoing Computer Digital Data Packets To Produce An Outgoing Packet Stream

For the reasons discussed above, Multiplexing is defined by its use and function in the specification to be the combining of voice data (V-data) and conventional data (C-data) for transmission through the same channel by dynamically changing the time allocations for transmission of each type of data such that V-data has higher priority over C-data, and C-data is substituted for silence packets which are detected and discarded. Demultiplexing is separating the incoming computer digital data packets and the compressed incoming digital voice data packers into separate packet streams.

Computer Digital Data Packets are segments of non-voice data from the local user's computer.

e. Transmitting The Outgoing Packet Stream

This claim is met when the outgoing packet stream is transmitted over a telephone line to a remote site.

Appendix B

4. '532 Patent, Claim 11

This claim is to be interpreted consistently with the definitions of all the claim elements construed above in the context of the above claims. Additional disputed claim elements not previously addressed requiring construction are addressed below.

a. A Method For Full Duplex Transmission Of Voice And Video Data Information, Comprising The Steps Of:

This preamble is a claim limitation limiting this element to full duplex transmission of voice and video data.

b. Multiplexing The Compressed Outgoing Digital Voice Data Packets With Outgoing Video Data Packets To Produce An Outgoing Packet Stream

i. Video Data Packets

Video Data Packets are segments of video (non-voice) data from the local user's (outgoing) or remote user's (incoming) computer.

IV. CONCLUSION

Based on the foregoing, and all the files, records and proceedings herein, IT IS HEREBY ORDERED that the claim constructions of the '289, '470, '649, '627, and '532 Patents are construed as set forth in this Order.

Appendix B

BY THE COURT:

s/ Ann D. Montgomery
ANN D. MONTGOMERY
UNITED STATES DISTRICT JUDGE

Date: August 16, 2002

APPENDIX C — ORDER ENTERING FINAL JUDGMENT, DISMISSING CERTAIN CLAIMS AND STAYING FURTHER PRETRIAL PROCEEDINGS FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF MINNESOTA FILED OCTOBER 23, 2002

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

Case No. 00-CV-1412 ADM/RLE

Honorable Ann D. Montgomery
Magistrate Judge Raymond L. Erickson

MICROSOFT CORPORATION,
a Washington corporation,

Plaintiff and Counterclaim
Defendant,

v.

MULTI-TECH SYSTEMS, INC.,
a Minnesota corporation,

Defendant and Counterclaim
Plaintiff.

ORDER ENTERING FINAL JUDGMENT, DISMISSING CERTAIN CLAIMS, AND STAYING FURTHER PRETRIAL PROCEEDINGS

Appendix C

This matter came before the Court upon the parties' joint motion for entry of final judgment of non-infringement of Multi-Tech Systems, Inc.'s ("Muti-Tech") United States Patent Numbers 5,452,289 (the "'289 patent"), 5,471,470 (the "'470 patent"), 5,600,649 (the "'649 patent"), 5,764,627 (the "'627 patent"), and 5,790,532 (the "'532 patent"), pursuant to Federal Rule of Civil Procedure 54(b), and for the dismissal of Microsoft Corporation's ("Microsoft") declaratory judgment claims of non-infringement and invalidity relating to Multi-Tech's United States Patent Numbers 5,577,041 (the "'041 patent") and 5,764,628 (the "'628 patent"). For the following reasons, the Court grants the parties' joint motion.

1. Pursuant to Federal Rule of Civil Procedure 54(b), there is no just reason for delay in entering a final judgment of non-infringement of the '289, '470, '649, '627, and '532 patents in favor of Microsoft;

2. Multi-Tech agrees and stipulates that, given the Court's construction of the asserted claims of the '289, '470, '649, '627 and '532 patents, Microsoft has not infringed and does not infringe these patents as Multi-Tech alleged in its Answer and Counterclaims against Microsoft;

3. It is understood that Multi-Tech disagrees with the Court's interpretation of the asserted claims of the '289, '470, '649, '627, and the '532 patents, and that Multi-Tech intents to appeal the Court's judgment in this case.

4. Certifying final judgment holding that the asserted claims of the '289, '470, '649, '627, and '532 patents have

not been infringed under Federal Rule of Civil Procedure 54(b) is appropriate in this matter because Microsoft's additional claims for invalidity and unenforceability of the '289, '470, '649, '627, and '532 patents are sufficiently factually distinct from the infringement disputes resolved by the claim construction issues on which the Court has already ruled;

5. Furthermore, resolution by the appellate court of claim construction issues will control future trial court proceedings;

6. This Court has weighed the need for immediate appeal versus the policy against piecemeal litigation and finds that there is no just reason for delay in entering final judgment;

7. Microsoft agrees and stipulates to dismiss with prejudice for want of subject matter jurisdiction its declaratory judgment claims of non-infringement and invalidity relating to the '041 and '628 patents, given Multi-Tech's statement of no liability and covenant not to sue Microsoft on the '041 and '628 patents. Specifically, Multi-Tech unequivocally stated that Microsoft has no liability to Multi-Tech or any successors-in-interest to the '041 and '628 patents for infringement of the claims of the '041 and '628 patents prior to October 15, 2002. Multi-Tech also unconditionally agreed not to sue Microsoft for infringement as to any claim of the '041 and '628 patents based upon the products currently made, used, or sold by Microsoft on or before October 15, 2002.

Appendix C

IT IS ORDERED on this 23rd day of October, 2002, that the Clerk of Court enter FINAL JUDGMENT on non-infringement of the '289, '470, '649, '627, and '532 patents pursuant to Federal Rules of Civil Procedure 54(b) in favor of Plaintiff and Counterclaim Defendant, Microsoft, and against Defendant and Counterclaim Plaintiff, Multi-Tech, in Civil Action No. 00CV1412(ADM/RLE);

IT IS FURTHER ORDERED that Microsoft's declaratory judgment claims of non-infringement and invalidity relating to the '041 and '628 patents are dismissed with prejudice for want of subject matter jurisdiction; and

IT IS FURTHER ORDERED that further pretrial proceedings with respect to all other claims, as well as taxing of costs and any motions for attorneys' fees with regard to the judgments entered, be and hereby are STAYED until such time as the claim construction and infringement issues that gave rise to this entry of final judgment pursuant to Federal Rules of Civil Procedure 54(b) are resolved by the United States Court of Appeals for the Federal Circuit or until November 22, 2002, if no timely appeal has been filed.

Dated: October 23, 2002

s/ Ann D. Montgomery
JUDGE ANN D. MONTGOMERY
United States District Court

APPENDIX D — ORDER ENTERING FINAL JUDGMENT AND STAYING FURTHER PRETRIAL PROCEEDINGS OF THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF MINNESOTA FILED OCTOBER 31, 2002

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

Case No. 00-CV-1627 ADM/RLE

Honorable Ann D. Montgomery
Magistrate Judge Raymond L. Erickson

[FILED UNDER SEAL]

MULTI-TECH SYSTEMS, INC., a Minnesota corporation,

Plaintiff,

v.

NET2PHONE, INC., a Delaware Corporation,

Defendant

ORDER ENTERING FINAL JUDGMENT AND STAYING FURTHER PRETRIAL PROCEEDINGS

This matter coming before the Court upon the parties' joint request for entry of final judgment of non-infringement of Multi-Tech Systems, Inc.'s ("Multi-Tech") United States Patent Numbers 5,452,289 (the "'289 patent"), 5,471,470 (the "'470 patent"), 5,600,649 (the "'649 patent"), and

5,764,627 ("'627 patent") pursuant to Federal Rule of Civil Procedure 54(a). For the following reasons, the Court grants the parties' joint request.

1. On August 16, 2002, this Court, as a matter of law, construed the asserted claims of the '289 patent, the '470 patent, the '649 patent, the '627 patent, and United States Patent Number 5,790,532 ("the '532 patent") and determined that the claim limitation, a "telephone line," means a standard telephone line or a POTS (plain old telephone service) line and that transmission through a packet switched network, i.e., the internet, was disclaimed;

2. On page 172 of the transcript of the April 25, 2002 hearing on claim construction, counsel for Multi-Tech conceded that if the Court ruled that Multi-Tech had disclaimed transmission through a packet switched network that Multi-Tech could not prove either literal or doctrine of equivalents infringement;

3. Accordingly, pursuant to Federal Rule of Civil Procedure 54(b), this Court enters final judgment of non-infringement of the '289, '470, '649, and '627 patents in favor of Net2Phone, Inc. ("Net2Phone").

IT IS on this 31st day of October 2002, ORDERED that FINAL JUDGMENT of non-infringement of the '289, '470, '649, and '627 patents be and hereby is entered pursuant to Federal Rule of Civil Procedure 54(a) in favor of Defendant, Net2Phone, and against Plaintiff, Multi-Tech, in Civil Action No. 00-CV-1627 (ADM/RLE); and

Appendix D

IT IS FURTHER ORDERED that further proceedings with respect to the taxing of costs any motions for attorneys' fees with regard to the judgments entered, be and hereby are STAYED until such time as the claim construction and infringement issues that gave rise to this entry of final judgment are resolved by the United States Court of Appeals for the Federal Circuit or until December 2, 2002, if no timely appeal is taken. Counsel are directed to notify the Court promptly in writing if no appeal is taken.

Dated: October 31, 2002

s/ Ann D. Montgomery
JUDGE ANN D. MONTGOMERY
UNITED STATES DISTRICT COURT

APPENDIX E — ORDER OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DENYING MULTI-TECH'S PETITION FOR REHEARING (MICROSOFT APPEAL) FILED MARCH 31, 2004

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

03-1138

MICROSOFT CORPORATION,

Plaintiff-Appellee,

v.

MULTI-TECH SYSTEMS, INC.,

Defendant-Appellant

ORDER

A combined petition for panel rehearing and for rehearing en banc having been filed by the APPELLANT, and a response thereto having been invited by the court and filed by the APPELLEE, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

Appendix E

ORDERED that the petition for panel rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on April 7, 2004.

Circuit Judge CLEVENGER, Circuit Judge GAJARSA and Circuit Judge DYK did not participate in the vote.

FOR THE COURT,

s/ Jan Horbaly
Jan Horbaly
Clerk

Dated: March 31, 2004

cc: Ronald J. Schutz
David T. Pritikin

MICROSOFT V MULTI-TECH SYSTEMS, 03-1138
(DCT - 00-CV-1412)

APPENDIX F — ORDER OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DENYING MULTI-TECH'S PETITION FOR REHEARING (NET2PHONE APPEAL) FILED MARCH 31, 2004

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

03-1139

MULTI-TECH SYSTEMS, INC.,

Plaintiff-Appellant,

v.

NET2PHONE, INC.,

Defendant-Appellee.

ORDER

A combined petition for panel rehearing and for rehearing en banc having been filed by the APPELLANT, and a response thereto having been invited by the court and filed by the APPELLEE, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

Appendix F

ORDERED that the petition for panel rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on April 7, 2004.

Circuit Judge GAJARSA and Circuit Judge DYK did not participate in the vote.

FOR THE COURT,

s/ Jan Horbaly
Jan Horbaly
Clerk

Dated: March 31, 2004

cc: Ronald J. Schutz
Richard D. Kelly